



PSGR Krishnammal College for Women



DEPARTMENT OF B.COM (BUSINESS ANALYTICS)

CHOICE BASED CREDIT SYSTEM &

OUTCOME BASED EDUCATION SYLLABUS

BACHELOR OF COMMERCE (BUSINESS ANALYTICS)

2020 – 2021 BATCH



PROGRAMME OUTCOMES

After completion of the programme, the student will be able to

PO1: To instil conceptual and procedural foundations of business analytical methods and techniques integrated with disciplines such as commerce, mathematics, statistics, management, economics and computer science.

PO2: To understand data science and its role of descriptive, predictive and prescriptive analytics using data mining techniques in problem solving and decision making that is imperative for business organizations.

PO3: To inculcate programming knowledge and ability to explore Big Data technologies, and algorithms for data visualization and data inference of different industries.

PO4: To apply appropriate analytic tools and techniques to resolve complex business analytical problems in various industry sectors and domains with hands on experience in relevant software.

PO5: To identify and resolve practically relevant business analytic tools to handle data based on diversified commerce conjecture to build and sustain a competitive advantage by expanding analytics capabilities for successful career.

PROGRAMME SPECIFIC OUTCOME

The students at the time of graduation will

PSO1: Hands-on learning of leading analytical tools.

PSO2: To acquire theoretical knowledge of data science tools, but will also gain exposure to business perspectives.

PSO3: The Career opportunities after completion of B.Com (BA) degree are Business Analyst, Quantitative Analyst, Operations Research Analyst and Market research Analyst.



DEPARTMENT OF B.COM (BUSINESS ANALYTICS)

**CHOICE BASED CREDIT SYSTEM & OUTCOME BASED EDUCATION
SYLLABUS & SCHEME OF EXAMINATION
BACHELOR OF COMMERCE (BUSINESS ANALYTICS)–2020-2021 BATCH**

Programme & Branch B.Com – Business Analytics											
Scheme of Examination (Applicable to students admitted during the academic year 2020- 2021onwards)											
Semester	Part	Subject Code	Title of the Paper	Instruction hrs/ week	Instruction hrs/ sem	Tutorial hrs / sem	Duration of Examination / sem	Examination Marks			
								CIA	ESE	Total	Credits
I	I	TAM2001/ HIN2001/ FRE2001	Language I –Tamil I/ Hindi I/ French I	6	86	4	3	40	60	100	3
	II	ENG2001/ ENG20F1	English I / Functional English I	6	86	4	3	40	60	100	3
	III	BP20C01	Principles of Accounting	4	56	4	3	40	60	100	4
	III	DA20C02	Fundamentals of Business Analytics	4	56	4	3	40	60	100	4
	III	TH20A15	Allied - Statistics I	6	86	4	3	40	60	100	5
	III	DA20CP1	Computer Application Practical I – Analysis with Excel	2	27	3	3	40	60	50*	1
	IV	NME19B1/ NME19A1/ NME18ES	Basic Tamil I/ Advanced Tamil I Introduction to Entrepreneurship	2 2 2	28 28 26	2 2 4	3 3 3	50 50 10 0	50 50 50	100 100 100	2 2 2
II	I	TAM2002/ HIN2002/ FRE2002	Language II –Tamil II Hindi II French II	6	86	4	3	40	60	100	3
	II	ENG2002/ ENG20F2	English II / Functional English II	6	86	4	3	40	60	100	3
	III	DA20C03	Statistics with R	6	86	4	3	40	60	100	5
	III	TH20A16	Allied- Statistics II	6	86	4	3	40	60	100	5
	III	DA20CP2	Computer Application Practical II- Statistics with R	4	57	3	3	40	60	50*	2

Bloom's Taxonomy based Assessment Pattern**CA I & II: (Theory & Accounts)**

Bloom's Category	Section	Marks		Total
Remember (K ₁) Understand (K ₂) Apply, Analyse (K ₃ , K ₄)	A – 5x2 marks	10	1 or 2 sentences	50
	B - 4x5 marks	20	250 words	
	C – 2 out of 3x 10 marks	20	500 words	

UG – End Semester Examination Question paper Pattern

Bloom's Category	Section	Marks		Total
Remember (K ₁) Understand (K ₂) Apply, Analyse (K ₃ , K ₄)	A – 11 out of 13x2 marks	22	1 or 2 sentences	100
	B - 5 out of 7x6 marks	30	300 words	
	C – 4 out of 6x 12 marks	48	600-800 words	

**WEIGHTAGE ASSIGNED TO VARIOUS COMPONENTS OF CONTINUOUS
INTERNAL ASSESSMENT****Theory**

	CIA I	CIA II	Model Exam	Assignment/ Class Notes	Seminar	Quiz	Class Participation	Library Usage	Attendance	Max. Marks
Core / Allied	5	5	6	4	5	4	5	3	3	40
SBS	5	5	15	-	-	-	-	-	-	25
ALC		10	15	-	-	-	-	-	-	25
Information Security	40	40		10		10				100

Practical

	Model Exam	Lab Performance	Regularity in Record Submission	Attendance	Maximum Marks
Core / Allied / SBS	12	20	5	3	40

SKILL BASED SUBJECT

Continuous Internal Assessment: 20 Marks

SECTION	MARKS	TOTAL
A – 4 / 6 x 4 Marks	16	25
B – 1 / 2 x 9 Marks	9	

ESE QUESTION PAPER PATTERN FOR SKILL BASED SUBJECT

Duration: 3Hrs
Marks:50

Section A 4 Questions out of 6 questions $4*5 = 20$

Section B 2 Questions out of 3 questions $2*15 = 30$

End Semester Examination: 20 Marks

SECTION	MARKS	TOTAL
A - 4 / 6 X 5 Marks	20	50
B - 2 / 3 X 15 Marks	30	

ADVANCED LEARNERS COURSE (ALC)

Continuous Internal Assessment: 20 Marks

SECTION	MARKS	TOTAL
A – 4 / 6 X 4 Marks	16	25
B – 1 / 2 X 9 Marks	9	

End Semester Examination: 20 Marks

SECTION	MARKS	TOTAL
A-5/8X5=25 Marks	25	75
B – 5/8X10=50 Marks	50	

**VALUE EDUCATION AND HUMAN RIGHTS / WOMEN STUDIES / AMBEDKAR
STUDIES / GANDHIAN STUDIES / ENTREPRENEURSHIP / ENVIRONMENTAL
STUDIES**

Continuous Internal Assessment : 50 Marks

SECTION	MARKS	TOTAL
A – 4 / 6 X 5 Marks	20	50
B – 2 / 3 X 15 Marks	30	

Value Education and Human Rights & Environmental Studies two internal tests will be conducted for 50 marks each and the total marks secured will be equated to a maximum of 75 marks and 25 marks is allotted for project / group discussion / presentation of a report.

INFORMATION SECURITY

Continuous Internal Assessment: 50 Marks

SECTION	MARKS	TOTAL
A – 5 / 8 X 2 Marks	10	40
B – 6 / 8 X 5 Marks	30	

INTERNSHIP TRAINING

Duration - (2 weeks) – submission of certificate

Subject Code - INST1

The practical training is essential to expose the students to the real life work situation and to strengthen the conceptual knowledge gained in the classroom. 2 weeks internship is to be arranged during the summer vacation after the fourth semester. The training shall be in banking, financial institution, or an industrial enterprise or consultancy organizations. Candidates should maintain a work dairy and submit a report at the end of the study. The department to conduct a viva-voce. The Principal of the college and the Head of the Department shall issue a certificate to the effect that the student had satisfactorily undergone the internship training for the prescribed period. The report should contain a minimum of 40 pages.

Evaluation:

Work dairy	15 marks
Attendance	10 marks
Report	50 marks
Viva voce	25 marks
TOTAL	100 Marks

PROJECT VIVA VOCE

Subject Code: DA16PROJ

Duration: 6 Hrs per Week

Credit: 5

Project work, which is compulsory, carries 100 marks. Group of students (3 to 5 students) should select a topic for the project work in the beginning of the fifth semester and submit the project report (dissertation) at the end of the fifth semester. The guide and an internal examiner shall evaluate the project report and conduct the viva. The project work shall be related to commerce and its related applications.

Project Evaluation

Internal 20 Marks:

- Topic – 2 Marks
- Review of Literature – 3 Marks
- Research, Design & data Collection – 10 Marks
- Analysis, Conclusion & Rough Draft – 5 Marks

External 60 Marks:

- Quality of Idea – 5 Marks
- Application of relevant Tools – 10 Marks
- Presentation of Report – 15 Marks
- Presentation of Project – 10 Marks (PPT)
- Explanation (Clarity) – 10 Marks
- Team Spirit – 5 Marks
- Plagiarism – 5 Marks

VIVA – 20 Marks

COMMUNITY ORIENTED SERVICE

30 hours of community oriented service is mandatory for UG students during holidays before the end of the fourth semester and the students can take up in any of the following fields: Literacy, Public Health, Hygiene, Crisis Management(Training the Public) Traffic Regulation, Green Projects etc., in Villages, Schools, Orphanages, Hospitals, Old Age Homes, Prisons and SHG groups.

SKILL BASED SUBJECT

Students have to select any one of the following skill based subject in the III Semester and the papers will be spread over four semesters (III, IV, V, VI semester). The exams will be conducted for these papers in the end of the IV and VI semester.

JOB ORIENTED COURSE

Students to complete a job oriented course for 60 hours from a pool of courses offered by different departments before the end of Semester-V.

ALLIED PAPERS

Two options are given for the students in the allied papers in the III and IV semester and they have to choose any one paper. Exams will be conducted in the respective semesters.

ONLINE OPEN COURSE

Open Course in the Second Semester to be Substituted by Online Courses Offered by Various Departments and Students Should Opt Any One of the Course (Inter Disciplinary) and Completion Certificate to be verified by the Department and to be Ensured by the End of the Semester - V.

RUBRIC ASSESSMENT TOOL

Assignment

Maximum - 20 Marks (converted to 4 marks) – Scale 4 to 1

Criteria	4 Marks	3 Marks	2 Marks	1 Mark
Focus Purpose	Clear	Shows awareness	Shows little awareness	No awareness
Main idea	Clearly presents a main idea.	Main idea supported throughout	Vague sense	No main idea
Organization: Overall	Well planned	Good overall organization	There is a sense of organization	No sense of organization
Content	Exceptionally well presented	Well presented	Content is sound	Not good
Style: Details and Examples	Large amounts of specific examples and detailed description	Some use of examples and detailed descriptions	Little use of specific examples and details	No use of examples

Seminar

Maximum - 20 Marks (converted to 5 marks) – Scale 4 to 1

Criteria	4 Marks	3 Marks	2 Marks	1 Mark
Focus Purpose	Clear	Shows awareness	Shows little awareness	No awareness
Main idea	Clearly presents a main idea.	Main idea supported throughout	Vague sense	No main idea
Organization: Overall	Well planned	Good overall organization	There is a sense of organization	No sense of organization
Content	Exceptionally well presented	Well presented	Content is sound	Not good
Style Details and Examples	Large amounts of specific examples and detailed description	Some use of examples and detailed descriptions	Little use of specific examples and details	No use of examples

CLASS PARTICIPATION

Maximum - 20 Marks (converted to 5 marks) – Scaled from 5 to 1

Criteria	5 Marks	4 Marks	3 Marks	2 Marks	1 Mark
Level of Engagement in Class	Student proactively contributes to class by offering ideas and asks questions more than once per class.	Student proactively contributes to class by offering ideas and asks questions once per class	Student contributes to class and asks questions occasionally	Student rarely contributes to class by offering ideas and asking no questions	Student never contributes to class by offering ideas
Listening Skills	Student listens when others talk, both in groups and in class. Student incorporates or builds off of the ideas of others.	Student listens when others talk, both in groups and in class.	Student listens when others talk in groups and in class occasionally	Student does not listen when others talk, both in groups and in class.	Student does not listen when others talk, both in groups and in class. Student often interrupts when others speak.
Behavior	Student almost never displays disruptive behavior during class	Student rarely displays disruptive behavior during class	Student occasionally displays disruptive behavior during class	Student often displays disruptive behavior during class	Student almost always displays disruptive behavior during class
Preparation	Student is almost always prepared for class with required class materials	Student is usually prepared for class with required class materials	Student is occasionally prepared for class with required class materials	Student is rarely prepared for class with required class materials	Student is almost never prepared for class.

QUIZ

Maximum - 20 Marks (converted to 4 marks)

MAPPING OF POs WITH COs

COURSE	PROGRAMME OUTCOMES				
	PO1	PO2	PO3	PO4	PO5
COURSE – BP20C01					
CO1	S	S	S	S	M
CO2	S	S	S	S	M
CO3	S	S	S	S	M
CO4	S	S	S	S	M
CO5	S	S	S	S	M
COURSE – DA20C02					
CO1	S	S	L	M	M
CO2	S	S	L	M	M
CO3	M	L	L	L	M
CO4	S	L	L	M	M
CO5	M	L	L	M	M
COURSE – DA20CP1					
CO1	S	M	L	L	M
CO2	S	S	S	S	S
CO3	S	S	M	M	S
CO4	S	M	M	L	S
CO5	S	S	M	M	S
COURSE – DA20C03					
CO1	S	S	M	S	S
CO2	S	M	S	S	M
CO3	M	S	S	M	M
CO4	M	S	M	M	M
CO5	M	S	S	M	M
COURSE – DA20CP2					
CO1	S	S	L	M	M
CO2	S	M	M	S	M
CO3	S	M	L	M	S

CO4	S	M	L	S	M
CO5	S	M	L	M	M
COURSE – BP20C04					
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	S	S	M	S
CO4	S	S	M	S	S
CO5	S	S	M	M	M
COURSE – BP20C05					
CO1	S	S	S	S	M
CO2	S	S	S	S	M
CO3	S	S	S	S	M
CO4	S	S	S	S	M
COURSE – DA20C06					
CO1	S	S	S	S	M
CO2	S	S	S	S	S
CO3	M	S	S	S	M
CO4	M	M	S	S	M
COURSE – EC20A02					
CO1	S	M	L	S	L
CO2	S	M	L	S	L
CO3	S	M	M	M	L
COURSE – DA20A01					
CO1	S	S	S	S	M
CO2	S	S	S	S	M
CO3	S	S	S	S	M
COURSE – DA20CP3					
CO1	S	S	S	S	L
CO2	S	S	S	S	L
CO3	S	S	S	S	L
CO4	S	M	M	M	L

COURSE – DA20C07					
CO1	S	S	M	S	S
CO2	S	M	S	S	M
CO3	M	S	S	M	M
CO4	M	S	S	M	M
COURSE – CM20C08					
CO1	S	M	S	S	M
CO2	S	S	S	S	S
CO3	S	S	S	M	S
CO4	S	M	S	S	M
CO5	S	S	S	M	S
COURSE – CM20C09					
CO1	S	S	M	M	M
CO2	S	S	M	M	M
CO3	S	S	M	M	M
CO4	S	S	M	M	M
CO5	S	S	M	M	M
COURSE – DA20A03					
CO1	S	S	L	M	M
CO2	M	S	M	L	L
CO3	M	M	S	S	L
CO4	S	M	M	S	L
COURSE – DA20A04					
CO1	S	S	M	M	L
CO2	S	M	S	S	S
CO3	S	M	M	M	S
CO4	S	M	M	M	S
COURSE – DA20CP4					
CO1	S	S	L	M	L
CO2	S	M	M	S	M
CO3	S	M	L	M	L

CO4	S	M	L	L	L
COURSE – DA19SB01					
CO1	S	S	L	M	M
CO2	S	M	M	S	M
CO3	S	M	L	M	S
CO4	S	M	L	M	M
COURSE – DA19SBP1					
CO1	S	S	L	M	M
CO2	S	M	M	S	M
CO3	S	M	L	M	S
CO4	S	M	M	M	S

COURSE NUMBER	COURSE NAME	CATEGORY	L	T	P	CREDIT
BP20C01	FINANCIAL ACCOUNTING	Theory	56	4	-	4

Preamble

To enable the students to apply the conceptual principles and to develop an expertise in handling the accounts of specialised institutions and the consolidation of accounts through appropriate accounting techniques and policies.

Prerequisite

- Basic Knowledge in Financial Statements

Course Outcome

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Familiarise the students for preparation of final accounts and make them understand the relationship between Profit & Loss Account and Balance Sheet.	K1,K2,K3
CO2	Grasp the accounting treatments relating to issue, acceptance, discounting, maturity and endorsement of bills and notes in the books of drawer and drawee.	K1,K2,K3
CO3	Interpret and explain the performance of branches.	K1,K2,K3
CO4	Understand the concept of ex-interest, cum-interest, to distinguish between bonus & rights and to examine the service potential of the fixed assets with the different methods of depreciation.	K1,K2,K3
CO5	Explain the procedures for depreciation and royalty to examine the due provision for strikes and lockouts.	K1,K2,K3

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	S	S	M
CO3	S	S	S	S	M
CO4	S	S	S	S	M
CO5	S	S	S	S	M

S - Strong; M - Medium; L - Low

Syllabus**Unit I (11 Hrs)**

Basic Accounting Concepts- Final Accounts- Bank Reconciliation Statement

Unit II (11 Hrs)

Bills of exchange (trade bills only) - Joint Venture (AS-27)

Unit III (11 Hrs)

Branch Accounts (Dependent Branches - Debtors and Stock & Debtors System– Independent Branches only)

Unit IV (12 Hrs)

Hire purchase Accounts – Royalties (AS-19) (excluding sublease)

Unit V (11 Hrs)

Depreciation (excluding change in method of depreciation) - Departmental Accounts- Basis for allocation of expenses

Text Book

S. No	Authors	Title	Publishers	Year of Publication
1.	Reddy T S & A Murthy	Financial Accounting	Margham Publications	Reprint 2015

Reference Books

S. No	Authors	Title	Publishers	Year of Publication
1.	RL Gupta & Radhasamy	Advanced Accountancy (Vol I)	Sultan Chand & Sons.	2018, 13 th ed.
2.	Jain S.P & Narang K.L	Principles of Accountancy	Kalyani Publishers	2018
3.	MC Shukla, T.S. Grewal & S.C. Gupta	Advanced Accountancy	S. Chand & sons	2013 ed

Pedagogy

Lecture, PPT, e-content, Seminar, Assignment, Quiz & Group discussion

COURSE NUMBER	COURSE NAME	CATEGORY	L	T	P	CREDIT
DA20C02	FUNDAMENTALS OF BUSINESS ANALYTICS	Theory	56	4	-	4

Preamble

- To achieve and establish vital understanding of big data application in business intelligence.
- To institute the concept of systematic transformation of process-oriented data into information of underlying business process.
- To exhibit knowledge of data analysis techniques and to apply principles of data sciences integrating enterprise reporting.

Prerequisite

- Basic knowledge in computers

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1.	To identify the importance of data science in business process.	K1
CO2.	To discuss data integration and modelling techniques.	K2
CO3.	Examine the business views using IT applications	K1
CO4.	Illustrate the concepts of Data warehouse	K3
CO5.	Experiment business intelligence concepts for enterprise reporting.	K4

Mapping with Programme Outcomes

Cos	PO1	PO2	PO3	PO4	PO5
CO1.	S	S	L	M	M
CO2.	S	S	L	M	M
CO3.	M	L	L	L	M
CO4.	S	L	L	M	M
CO5.	M	L	L	M	M

S- Strong; M-Medium; L-Low

Syllabus

Unit I

(11 Hrs)

Introduction to the BA Role: Business Analysis -Business Analyst - The evolving role of the Business Analyst - The BA roadmap: different levels of business analysis - The basic rules of Business & Business Analysis - Classical Requirements and Tasks performed by Business Analysts. **Project Definition and Scoping:** Aspects - Projects phases - Project approaches (Waterfall, Agile, Iterative, Incremental) - The role of the BA across the project lifecycle.

Unit II**(11 Hrs)**

Business view of Information Technology Applications: Core business process – Baldrige Business Excellence framework - Key purpose of using IT in business - Enterprise Applications - Information users and their Requirements. **Data Definition:** Types of Data – Attributes and Measurement – Types of data sets – Data quality – Types of Digital Data.

Unit III**(12 Hrs)**

Introduction to OLTP and OLAP – OLTP – OLAP – Different OLAP Architectures – OLTP and OLAP – Data models for OLTP and OLAP – Role of OLAP Tools in BI Architecture. Business Intelligence – Business Intelligence defined – Evolution of BI and Role of DSS, EIS, MIS and Digital Dashboards – Need for BI – BI value chain – Introduction to Business Analytics. BI Definitions and Concepts – BI Component Framework – Need for BI – BI Users – Business Intelligence applications – BI roles and responsibilities.

Unit IV**(11 Hrs)**

Data Integration – Data Warehouse – Goals – Data sources – Extract – Transform, Load – Data Integration – Technologies – Data Quality maintenance – Data profiling. Data Modelling – Basics – Types – Techniques – Fact table – Dimension Table – Typical Dimensional Models – Dimensional modeling life cycle – Designing the Dimensional Model.

Unit V**(11 Hrs)**

Measures, Metrics, KPIs and Performance Management – Definition – Measurement system terminology – Role of Metrics and metrics supply chain – fact-based decision making and KPIS use of KPIs – potential source for metrics. Enterprise Reporting – Report standardization – Balanced score card – dashboards – scoreboards vs. dashboards. BI in Real world – BI and mobility – BI and cloud computing – BI for ERP systems –Social CRM and BI.

Text Book

S.No	Author Name	Title of the Book	Publisher	Year and Edition
1.	Study Material – Unit I			
2.	RN Prasad, Seema Acharya-Unit II-V	Fundamentals of Business Analytics	Wiley	2015 Revised Edition
3.	Pang-Ning Tan Michael Steinbach, Vipin Kumar (Unit II-Data)	Introduction to Data Mining	Pearson Education	2015 Revised Edition

Reference Books

S.No	Author Name	Title of the Book	Publisher	Year and Edition
1.	Haydn Thomas - Demonoid	Business Analysis Fundamentals	Pearson	2015 Revised Edition

Skill Components

- Determine the concepts of business analytics and business process.
- Analyzing the techniques of integration and modeling.
- Analyze the concept of data warehouse, OLTP, OLAP.
- Understand KPI and measures to apply in a business.
- Forecast on business intelligence concepts for enterprise reporting.

Pedagogy

Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

Course Designers

1. Dr.M.Rajeshwari
2. S. Deepika

COURSE NUMBER	COURSE NAME	CATEGORY	L	T	P	CREDIT
DA20CP1	Computer Application Practical I –Analysis With Excel	Practical	-	3	27	1

Preamble

- To inculcate the knowledge of MS Excel
- To understand the basic statistics tools & methods

Prerequisite

- No prerequisite required

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	To understand the Analytical commands in Excel	K1
CO2	To identify the statistical tools for problem solving	K1
CO3	Discuss on statistical operation	K2
CO4	Illustrate on basic analytical tools	K3
CO5	Analyse a program using appropriate analytical tool	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	L	L	M
CO2	S	S	S	S	S
CO3	S	S	M	M	S
CO4	S	M	M	L	S
CO5	S	S	M	M	S

S- Strong; M-Medium; L-Low

Syllabus

1. Suppose that at the beginning of May 2012 you purchased shares in Apple, Inc. (Nasdaq: AAPL). It is now five years later and you decide to evaluate your holdings to see if you have done well with this investment. The table below shows the market prices of AAPL.

DATE	PRICE
2012	59.77
2013	121.19
2014	188.75
2015	135.81
2016	256.88
2017	337.41

- Enter the data, as shown, into a worksheet and format the table as shown.
- Create a formula to calculate rate of return for each year. Format the results as percentages with two decimal places.
- Calculate the total return for the entire holding period. What is the compound average annual rate of return?
- Create a Line chart showing the stock price from May 2006 to May2011. Make sure to title the chart and label the axes. Now, create an XY Scatter chart of the same data. What are the differences between these types of charts? Which type of chart is more appropriate for this data?
- Experiment with the formatting possibilities of the chart. For example, you might try changing it to a 3-D Line chart and fill the plot area with a marble background. Is there any reason to use this type of chart to display this data? Do the “enhancements” help you to understand the data?

2. In your position as research assistant to a portfolio manager, you need to analyse the profitability of the companies in the portfolio. Using the data for Chevron Corporation below:

FISCAL YEAR	2017	2016	2015	2014	2013
TOTAL REVENUE	1,98,198	1,71,636	2,64,958	2,20,904	2,04,892
NET INCOME	19,024	10,483	23,931	18,688	17,138

- Calculate the net profit margin for each year.
 - Calculate the average annual growth rates for revenue and net income using the **GEOMEAN** function. Is net income growing more slowly or faster than total revenue? Is this a positive for your investment in the company?
 - Calculate the average annual growth rate of total revenue using the **AVERAGE** function. Is this result more or less accurate than your result in the previous question? Why?
 - Create a Column chart of total revenue and net income. Be sure to change the chart so that the x-axis labels contain the year numbers, and format the axis so that 2017 is on the far right side of the axis.
3. Repeat Problem 2 using the data below for Qualcomm Inc. However, this time you should create a copy of your worksheet to use as a template. Replace the data for Chevron with that of Qualcomm.

FISCAL YEAR	2017	2016	2015	2014	2013
TOTAL REVENUE	10,991	10,416	11,142	8,871	7,526
NET INCOME	3,247	1,592	3,160	3,303	2,470

a) Do you think that Qualcomm can maintain the current growth rates of sales and net income over the long run? Why or why not?

b) Which company was more profitable in 2010? Which was more profitable if you take a longer view? Would this affect your desire to invest in one company over the other?

4. Using the data for Paychex, Inc. (Nasdaq: PAYX), presented below:

FISCAL YEAR	2017	2016	2015	2014	2013
SALES	\$ 2000.82	\$ 2082.76	\$ 2066.32	\$ 1886.96	\$ 1674.60
EBIT	729.31	812.08	854.82	743.27	674.77
TOTAL NET INCOME	477.00	533.54	576.14	515.45	464.91
DIVIDENDS PER SHARE	1.24	1.24	1.22	1.02	0.69
BASIC EPS FROM TOTAL OPERATIONS	1.32	1.48	1.56	1.35	1.23
TOTAL ASSETS	5,226.30	5,127.42	5,309.79	6,246.52	5,549.30
ACCOUNTS PAYABLE	37.3	37.33	40.25	46.96	46.67
TOTAL LIABILITIES	3,824.32	3,785.94	4,113.15	4,294.27	3,894.46
RETAINED EARNINGS	856.29	829.50	745.35	1,595.10	1,380.97
NET CASH FROM OPERATING ACTIVITIES	610.92	688.77	724.67	631.23	569.23

a) Calculate the ratio of each years' data to the previous year for each of the above items for Paychex, Inc. For example, for the year 2010, the ratio for sales is $\$2,000.82/\$2,082.76 = 0.9607$.

b) From your calculations in part a, calculate each year's rate of growth. Using the example in part a, the ratio is 0.9607, so the percentage growth in sales for 2010 is $0.9607 - 1$ or -3.93% .

c) Calculate the average growth rate (using the **AVERAGE** function) of each of the above items using the results you calculated in part b. These averages are arithmetic averages.

d) Use the **GEOMEAN** function to estimate the compound annual average growth rate (CAGR) for each of the above items using the results that you calculated in part a. Be sure to subtract 1 from the result of the **GEOMEAN** function to arrive at a percent change. These averages are geometric averages.

e) Compare the results from part c (arithmetic averages using the **AVERAGE** function) to those for part d (geometric averages using the **GEOMEAN** function) for each item. Is it true that the arithmetic average growth rate is always greater than or equal to the geometric average (CAGR)?

f) Contrast the results for the geometric averages to those for the arithmetic average for the variables listed below. What do you observe about the differences in the two growth estimates for Sales and Accounts Payable? What do you observe about the differences in the two estimates for Total Assets and Retained Earnings? Hint: Look at the results from part b (the individual yearly growth rates) for each variable to draw some conclusions about the variation between the arithmetic and geometric averages.

1. Sales
2. EBIT
3. Total Assets
4. Accounts Payable
5. Retained Earnings

5. Cash budget using What If Analysis

6. Using Goal Seek to calculate Break Even Points

7. Sensitivity analysis of Capital Budgeting – Scenario Analysis, NPV Profile Charts

8. Use Goal Seek to find out what grade is needed on the final assignment to pass the class given that the grades on the first four assignments are **64, 55, 78, and 59**. Use formula or function that calculates the final grade.

9. Analysing Datasets with Tables and Pivot Tables

Pedagogy

Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

Course Designers

1. S. Deepika
2. Dr. Rajeswari

COURSE NUMBER	COURSE NAME	CATEGORY	L	T	P	CREDIT
DA20C03	STATISTICS WITH R	Theory	86	4	-	5

Preamble

- To introduce R Programming concepts and to develop programming skills in R Programming

Prerequisite

- No prerequisite required.

Course Outcomes

On the successful completion of the course, students will be able to

CO No.	CO Statement	Knowledge Level
CO1	Relate R Programming concepts with Datasets	K1
CO2	Demonstrate data frames to perform data manipulations	K3
CO3	Experiment with various quantitative analysis techniques	K3
CO4	Describe the measures used to test an algorithm	K2
CO5	Analyze on hypothesis test and its various types	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	S
CO2	S	M	S	S	M
CO3	M	S	S	M	M
CO4	M	S	M	M	M
CO5	M	S	S	M	M

S- Strong; M-Medium; L-Low

Syllabus

Unit I

(17 Hrs)

Introduction to R Programming R and R Studio, Logical Arguments, Missing Values, Characters, Factors and Numeric, help in R, Vector to Matrix, Matrix Access, Data Frames, Data Frame Access, Basic Data Manipulation Techniques, Usage of various apply functions – apply, lapply, sapply and tapply, Outliers treatment.

Unit II**(17Hrs)**

Descriptive Statistics Types of Data, Nominal, Ordinal, Scale and Ratio, Measures of Central Tendency, Mean, Mode and Median, Bar Chart, Pie Chart and Box Plot, Measures of Variability, Range, InterQuartile-Range, Standard Deviation, Skewness and Kurtosis, Histogram, Stem and Leaf Diagram, Standard Error of Mean and Confidence Intervals.

Unit III**(17 Hrs)**

Probability, Probability & Sampling Distribution Experiment, Sample Space and Events, Classical Probability, General Rules Of Addition, Conditional Probability, General Rules For Multiplication, Independent Events, Bayes' Theorem, Discrete Probability Distributions: Binomial, Poisson, Continuous Probability Distribution, Normal Distribution & t-distribution, Sampling Distribution and Central Limit Theorem.

Unit IV**(18 Hrs)**

Statistical Inference and Hypothesis Testing Population and Sample, Null and Alternate Hypothesis, Level of Significance, Type I and Type II Errors, One Sample t Test, Confidence Intervals, One Sample Proportion Test, Paired Sample t Test, Independent Samples t Test, Two Sample Proportion Tests, One Way Analysis of Variance and Chi Square Test.

Unit V**(17 Hrs)**

Correlation and Regression Analysis of Relationship, Positive and Negative Correlation, Perfect Correlation, Correlation Matrix, Scatter Plots, Simple Linear Regression, R Square, Adjusted R Square, Testing of Slope, Standard Error of Estimate, Overall Model Fitness, Assumptions of Linear Regression, Multiple Regression, Coefficients of Partial Determination, Durbin Watson Statistics, Variance Inflation Factor.

Text Book

S .No	Author Name	Title of the Book	Publisher	Year and Edition
1.	Ken Black	Business Statistics	Wiley	2013
2.	Lee, Cheng. et al	Statistics for Business and Financial Economics	Heidelberg Dordrecht	2013
3.	Anderson, David R., Thomas A. Williams and Dennis J. Sweeney	Statistics for Business and Economics	South Western	2012

Reference Books

S. No	Author Name	Title of the Book	Publisher	Year and Edition
1.	Waller, Derek	Statistics for Business	BH Publications	2008
2.	Levin, Richard I. and David S. Rubin	Statistics for Management	Prentice Hall	1994

Skill Components

- Acquire knowledge to relate R Programming concepts with Datasets
- Establish data frames to perform data manipulations
- Analyse data using Descriptive Statistics and measures
- Experiment with various quantitative analysis techniques
- Analysis with Correlation and Regression

Pedagogy

- Demonstration through System, Demonstration through PPT

Course Designers

1. Dr. Rajeswari
2. S. Deepika

COURSE NUMBER	COURSE NAME	CATEGORY	L	T	P	CREDIT
DA20CP2	Computer Application Practical II – Statistics with R	Practical	-	3	57	2

Preamble

- To explore and acquire skills in SPSS and R Programming

Prerequisite

- Basic knowledge of Computers

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Relate R Programming concepts with Datasets	K1
CO2	Demonstrate data frames to perform data manipulations	K3
CO3	Experiment with various quantitative analysis techniques	K3
CO4	Describe the SPSS with various measures	K2
CO5	Analyze on hypothesis test and its various types	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	L	M	M
CO2	S	M	M	S	M
CO3	S	M	L	M	S
CO4	S	M	L	S	M
CO5	S	M	L	M	M

S- Strong; M-Medium; L-Low

Syllabus

1. Find leap year using R program.
2. Write program to calculate Multiplication Table using R program.
3. Create a simple calculator using R program
4. Creating vector and matrices using R program.
5. Import and Visualize data using scatter plots
6. Logical statements, cbind/rbind command in R and Create dataset using dataframes and factors and plot a graph.

R and SPSS

7. Create an SPSS and R Dataset and determine the number of 18-22-year-old population in 2000, 2004 and 2005

PARTICULARS	2000	2004	2005
UNIVERSITY STUDENT	47498	66309	70153
NUMBER OF TEACHERS	17302	19103	18098
NUMBER OF INSTITUTIONS	77	91	90
NUMBER OF STUDENTS IN THE % OF THE 18-22 YEAR-OLD POPULATION	10.4	13.9	15

- 8) The data below are about the number of tourists in Hungary between 1988 and 1994.

Year	Quarters	Number of tourists (thousand persons)	Year	Quarters	Number of tourists (thousand persons)
1988	1	687.5	1990	4	1061.2
1988	2	944.7	1991	1	839
1988	3	1212.8	1991	2	1446
1988	4	999.4	1991	3	2274.7
1989	1	839.8	1991	4	1281.5
1989	2	1126.6	1992	1	868.1
1989	3	1423.4	1992	2	1374
1989	4	1164.8	1992	3	1823.9
1990	1	896.2	1992	4	1319.3
1990	2	1307.8	1993	1	854
1990	3	1887.8			

- a) Is there any trend in this model? (Normality test)
- b) Create a graph from the time series!
- c) Which seasonal decomposition should you use? Why?
- d) Do a seasonal decomposition! Analyze the parameters and the seasonal factors!

- e) Create graphs from the seasonal factors (saf_1, sas_1, stc_1)!
- f) Determine the number of tourists for the 2nd, 3rd and 4th quarter of 1993!
- 9) Open the Employee_data.sav file! and analyse the following in SPSS and R

Transform / Select Data

- a) What is the proportion of custodial?
- b) What is the proportion of women within managers?

Graphs

Create a column diagram about the proportion of employees grouped by gender!

Embellish the graph! Put the value of proportions into the chart!

- a) Transform this column diagram into a pie chart!
- b) Create a scatter plot about month since hire and beginning salary if you set markers by gender! Embellish the graph!
- c) Create a scatter plot about month since hire and previous experience if you set markers by employment category! Embellish the graph!
- d) Define simple box plot about previous experience! Embellish the graph!
- e) Define simple box plot about the month since hire categorized by the employment category! Embellish the graph!
- f) Define box plot about the previous experience categorized by the employment category clustered by gender! Embellish the graph!
- g) Create a graph to test the normal distribution of beginning salary!

Central Tendencies, Measures of Distribution, Measures of Asymmetry

- a) Define the central tendencies of month since hire!
- b) Define the characteristics of distribution of previous experience!
- c) What is the average salary of employees belonging to the minority?

Correlation and Linear Regression

Is there any relation between previous experience and month since hire?

- b) Determine a linear relation between the month since hire and previous experience of employees!
- c) Define a 90% confidence interval for its b0 and b1 parameters!
- d) Define a 90% confidence interval for the y variable!
- E) Open the Cars.sav file!

Transform / Select Data

- a) How old are the cars? Create a new variable as age!
- b) What is the ratio of American, European and Japanese cars within cars with higher consumption than 20 miles per gallon?
- c) What is the ratio of those American cars which have 4-6-8 cylinders?

10. Estimation and Hypothesis Testing

- a) Define a 95% confidence interval for the vehicle weight!
- b) Define a 90% confidence interval for the horsepower!
- c) Define a 98% confidence interval for the time to accelerate!
- d) Test the hypothesis that the average consumption of cars is 20 miles per gallon! ($\alpha = 5\%$)
- e) Use One Sample T Test to determine whether or not the average miles per gallon significantly differ from 24 at 10% significance level!
- f) Test the hypothesis that the average horsepower of cars is 100! ($\alpha = 5\%$)
- g) Test the hypothesis that the average consumption of Japanese and American cars is the

same! ($\alpha = 5\%$)

h) Test the hypothesis that the average consumption of European and American cars is the same! ($\alpha = 10\%$)

i) Check if the horsepower follows a normal distribution or not!

Statistical Dependence

a) Create a crosstab from the model year and the country of origin!

b) Create a crosstab from the number of cylinders and the country of origin!

c) Is there any relationship between the country of origin and engine displacement?

d) Is there any relationship between the country of origin and horsepower?

e) Is there any relationship between the country of origin and vehicle weight?

Pedagogy

- Demonstration through System, Demonstration through PPT

Course Designers

1. Dr. M.Rajeswari
2. S. Deepika

COURSE NUMBER	COURSE NAME	CATEGORY	L	T	P	CREDIT
BP20C04	BUSINESS MANAGEMENT AND ETHICS	Core	71	4	-	4

Preamble

To provide the students with an understanding of the basic principles of management in the functional areas of business to pursue careers in management with ethics

Prerequisite

- Basic knowledge on Business Management

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Identify the fundamental concepts and principles of management including the basic roles and responsibilities.	K1
CO2	Understand the management functions viz., planning, organising, staffing, directing, controlling etc.	K2
CO3	Identify the management process and decision making in management functions	K2
CO4	Apply the theories and practical applications of management concepts	K3
CO5	Demonstrate the process of management functions and evaluate the social responsibility and ethical issues in business situations	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	S
CO2	S	S	S	S	S
CO3	S	S	S	M	S
CO4	S	S	M	S	S
CO5	S	S	M	M	M

S- Strong; M-Medium; L-Low

Syllabus

Unit I

(14 Hrs)

Management -Definition - Nature and Scope – Functions – Managerial Skills – Levels of Management – Roles and Skills of a Manager - Contributions by Henry Fayol, FW Taylor, Peter F Drucker, McGregor, Elton Mayo -Management as a Science, Art, Profession- Management and Administration – Principles of Management.

Unit II

(14 Hrs)

Planning: Meaning – Nature- Importance- Purpose of Planning- Planning Process - Advantages and Limitations- Types of Plans – Objectives – Policies – Strategies – Procedures – Programmes – Obstacles to Effective Planning - **Decision Making:** Steps in Decision Making – Role of MIS for Decision Making. **MBO-** MBE- Policy and Strategy

Unit III

(15 Hrs)

Organization: Meaning-Nature and Importance-Process of Organization- Organization Structure- Organization Chart- Organization Manuals- Types of Organization- Departmentation - Span of Management – Authority – Responsibility- Accountability- Power- Delegation- Centralization- Decentralization – Staffing - case study

Unit IV

(14 Hrs)

Leadership-Meaning-Importance-Functions of Leadership-Leadership Styles-Qualities of a Good Leader- Theories and Approaches to Leadership. **Directing –** Functions- Coordination – Meaning - Definition-Principles -Advantages & Disadvantages #case study

Unit V

(14 Hrs)

Control- Meaning- Nature - Importance- Process & Techniques of Control- **Ethics –** Meaning, Importance, Nature and Relevance –Structure of ethics management - Ethics in Business Factors affecting ethical practices in business- Social Responsibility of business.

Text Book

S. No	Authors	Title	Publishers	Year of Publication
1.	RK Sharma & Shasi K Gupta	Principles of Management	Kalyani Publishers	2017 reprint
2.	Dinkar Pagre	Principles of Management	Sultan Chand & sons	2018 reprint

Reference Books

S. No	Authors	Title	Publishers	Year of Publication
1.	Dr.C.N Sontakkai	Principles of Management	Kalyani Publishers,	2016 reprint
2.	PC tripathi & PN Reddy	Principles of Management	Tata Mcgraw Hill Publishing Co Ltd	2017 ed.
3.	Robbins, De Cenzo, & Coulter.	Fundamentals of Management	Pearson Education Ltd	10th Ed. 2017

Skill Components

- Preparation of different types of organisation charts
- Construct a standing plan for a new business venture
- Demonstrate different leadership styles through role play
- Study the ethical practices followed in the organization
- Select any one company and prepare SWOT analysis
- Prepare a report of CSR activities followed in an organisation

Pedagogy

- Lecture, PPT presentation , Quiz, Group Discussion, Seminar, Assignment, Activity based learning

Course Designers:

1. Mrs. R.Jayasathya
2. Dr. R. Vasanthi

COURSE NUMBER	COURSE NAME	CATEGORY	L	T	P	CREDIT
BP20C05	PRINCIPLES OF MARKETING	CORE	71	4	-	4

Preamble

- To understand how organizations identify customers and their wants/needs.
- To comprehend marketing decisions, based upon the combination of product, price, promotion, and distribution elements.
- To learn and to understand E-Marketing and its strategies

Prerequisite

- Basic Knowledge in Marketing

Course Outcome

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Identify marketing and market driven enterprises	K1
CO2	Examine the basic elements of the marketing mix and to provide a framework to evaluate marketing decisions and initiatives	K2
CO3	Formulate pricing strategies for products and services	K3
CO4	Analyze agricultural and E Marketing models	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	S	S	M
CO3	S	S	S	S	M
CO4	S	S	S	S	M

S - Strong; M - Medium; L - Low

Syllabus

Unit I

(14 Hrs)

Market: - Meaning, Definition, Classification of Markets. **Marketing:** - Meaning, Definition, Features, Importance, Evolution and Functions of Marketing- Difference between Marketing and Selling. **Marketing Environment:** -Micro and Macro Marketing Environment, Controllable and Uncontrollable Factors- Modern Marketing Concepts – Marketing Mix – Definition and Elements – Market Segmentation

Unit II**(14 Hrs)**

Product: - Meaning, Definitions – Elements of Product Policy and Branding Strategies – Product Life Cycle and New Product Planning. **Price:** - Meaning, Definition, Importance, Factors affecting pricing decisions, Kinds of Pricing

Unit III**(15 Hrs)**

Promotion Mix: - Sales Promotion, Meaning, Definition, Objectives, Advantages and Kinds of Sales Promotion. **Advertising:** - Meaning, Definition, Functions, Objectives, Advantages, Kinds of Advertising Media. **Personal Selling:** - Meaning, Definition, Objectives, Importance, Qualities of a Good Sales Man, Features and Process of Personal Selling. **Channels of Distribution** - Meaning, Definition, Importance, Types, E-Channels of distribution - Factors Determining Choice of Channel of Distribution

Unit IV**(14 Hrs)**

Rural Marketing: - Meaning, Definition, Nature and Types - Agricultural Marketing in India – Types of agricultural goods - Problems and Remedies, Regulated Markets-Functions and Advantages. **Organized Markets** - Characteristics, Commodity Exchange - Future Contracts – Hedging. **Co-operative Marketing** - Objectives – Features – Functions - Advantages and Limitations

Unit V**(14 Hrs)**

E-Marketing – Difference between e-marketing and e-business – E-Marketing past, present and future.–. **E-Marketing plan:** overview – creating- steps in e-marketing plan. **Services Marketing** – Meaning and definition of service – Characteristics of service and types of services. **Relationship Marketing** – **International Marketing** – Objectives, Importance and policies

Text Book

S.No	Author Name	Book Name	Publisher	Year and edition
1.	Pillai R.S.N. and Bagavathi	Modern Marketing Principles and Practices	S.Chand& Co. New Delhi	4 th Edition,2013
2.	J P Mahajan	Principles of Marketing	Vikas Publishing House Pvt Ltd	2 th Edition, 2017.

Reference Books

S. No	Authors	Title	Publishers	Year of Publication
1.	Gupta C.B., Rajan NairN.	Marketing Management	Sultan Chand andSons, New Delhi	17th Edition, 2016
2.	Philip Kotler, Gary Armstrong, Lioys C. Harris	Principles of Marketing	Pearson	17 th Illustrated Edition, 2017

Skill Components

- The input of basic fundamentals, coupled with the practical knowledge will be given to impart them in understanding of contemporary marketing tactics and strategies.

- Identify different markets and networking of products and how market is segmented
- Provides a creative knowledge on Marketing Mix and its strategies.
- Inculcates a strong foundation on Rural marketing as many of the businesses are engaged in rural markets.
- Study on popular E-Marketing strategies in globalized arena and other broad areas of marketing as Relationship and services marketing

Pedagogy

Lecture, PPT presentation, Quiz, Group Discussion, Seminar, Assignment, Activity based learning

Course Designers:

1. Mrs. R.Jayasathya
2. Dr. M. Nithya sri

COURSE NUMBER	COURSE NAME	CATEGORY	L	T	P	CREDIT
DA20C06	DATABASE PROGRAMMING	CORE	86	4	-	4

Preamble

- To provide comprehensive knowledge about relational and NoSQL database management system

Prerequisite

- No prerequisite required

Course Outcome

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Interpret relational database management concepts	K1
CO2	Develop the tables using normalization	K2
CO3	Illustrate SQL operators and keys	K3
CO4	Understand the concepts of NOSQL and MONGODB	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	M
CO2	S	S	S	S	S
CO3	M	S	S	S	M
CO4	M	M	S	S	M

S - Strong; M - Medium; L - Low

Syllabus

Unit I (18 Hrs)

Introduction to database management System-Data Models-Database system architecture- The SQL Language-Relational Database Management System-Candidate key, primary tables key, Foreign Key-Relational Operators-Attribute domains and their Implementations-New conventions for Database Object-Structure of SQL statements and SQL writing Guidelines-Creating Tables- Describing the structure of a Table-Populating tables

Unit II (17 Hrs)

Functional Dependencies-Normalization process: 1NF- 2NF-3NF-BCNF. The E-R Model- Entities and Attributes-Relationships-Normalizing the Model-Table Instance Charts-Implementation of the selection Operator-Using aliases to control column Headings-Implementation of the projection and join Operators-Creating foreign keys and primary keys and check constraints-adding and modifying Columns-Removing constraints from a table

Unit III (17 Hrs)

Built-in-Functions-Numeric-Character Conversion Functions-Introduction to group functions-sum, avg, max, min, count-combining single value and group functions- Displaying Specific Groups-Introduction to processing date and Time-Arithmetic with Dates-Date Functions- Formatting dates and time. Sub Queries-Correlated Queries-Using sub queries to create, update, insert and delete rows from a Table-Transaction-Commit, rollback, save point and auto Commit- Introduction to PL/SQL-user defined Functions-Triggers-Stored procedures

Unit IV (17 Hrs)

Overview and History of NoSQL Databases Definition of the Four Types of NoSQL Database, The Value of Relational Databases, Getting at Persistent Data, Concurrency, Integration, Impedance Mismatch, Application and Integration Databases, Attack of the Clusters, The Emergence of NoSQL. Aggregate Data Models: Aggregates - Key-Value and Document Data Models - Column-Family Stores - Summarizing Aggregate-Oriented Databases - More Details on Data Models - Distribution Models – Consistency.

Introduction to MongoDB- Getting Started – Querying - Creating, Updating, and Deleting Documents – Querying - Designing Your Application: Indexing - Special Index and Collection Types – Aggregation

Unit V (17 Hrs)

Introduction to WEKA – The Explorer – Getting started – Exploring the explorer – Filtering algorithm

Text Book

S.No	Author Name	Book Name	Publisher	Year and edition
1	Ramon A Mata- Toledo Pauline K Cushman. Unit: 1 -3	Database Management System	Tata McGraw-Hill Publishing company limited, New Delhi.	2010, 2 nd edition

2	Pramod J. Sadalage & Martin Fowler. Kristina Chodorow Unit: 4	NoSQL Distilled MongoDB: The definitive guide	Pearson Education, Inc. O'Reilly Media, Inc.,	2013 Edition 2013, 2 nd Edition
3	Eibe Frank, Mark A. Hall, and Ian H. Witten Unit: 5	The WEKA workbench	Morgan Kaufmann	2016, 4 th Edition.

Reference Books

S. No	Authors	Title	Publishers	Year of Publication
1.	Ramkrishnan & Gerke	Database Management Systems	Tata McGraw Hill	2009, 8 th edition
2.	Nilesh Shah	Database Systems using Oracle	PHI learning pvt Ltd	2014, 2 nd edition
3	Alexis Leon & Mathews Leon	Fundamentals of database management systems	Tata McGraw Hill	2011, 3 rd edition

Skill Components

- Understand the concepts of tables, queries and SQL.
- Demonstrate SQL queries, operators, aggregate function, sub query and join operators.
- Identify the concepts of normalization.
- Interpret SQL and NOSQL - MONGODB.
- Identify and evaluate the data and infer the results with WEKA

Pedagogy

Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

Course Designers:

1. S. Deepika
2. Dr.M.Rajeswari

COURSE NUMBER	COURSE NAME	CATEGORY	L	T	P	CREDIT
EC20A02	BUSINESS ECONOMICS	Theory	71	4	-	5

Preamble

- To introduce microeconomic and macroeconomic concepts
- To familiarize various economic theories
- To interpret and examine the monetary and fiscal policy

Prerequisite

- Basic knowledge in economics

Course Outcome

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Define and understand the various laws of economics	K1
CO2	Demonstrate different market structure and pricing policy	K2
CO3	Interpret and Develop Economic theories and policies	K3

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	L	S	L
CO2	S	M	L	S	L
CO3	S	M	M	M	L

S - Strong; M - Medium; L - Low

Syllabus

Unit I

(14 Hrs)

Introduction to Economics – Wealth, Welfare and Scarcity Views on Economics - Positive and Normative Economics. Definition – Scope and Importance of Business Economics. Concepts: Production Possibility frontiers – Opportunity Cost – Accounting Profit and Economic Profit – Incremental and Marginal Concepts – Time and Discounting Principles – Concept of Efficiency

Unit II

(14 Hrs)

Demand and Supply Functions: Meaning of Demand – Determinants and Distinctions of demand – Law of Demand – Elasticity of Demand – Demand Forecasting – Supply concept and Equilibrium. Consumer Behaviour: Law of Diminishing Marginal utility – Equi-marginal Utility – Indifference Curve – Definition, Properties and equilibrium

Unit III

(14 Hrs)

Production: Law of Variable Proportion – Laws of Returns to Scale – Producer's equilibrium – Economies of Scale. Cost Classification – Break Even Analysis. Product Pricing: Price and Output Determination under Perfect Competition, Monopoly – Discriminating monopoly – Monopolistic Competition – Oligopoly – Pricing objectives and Methods

Unit IV

(15 Hrs)

National Income - Gross National Product -Net National Product – Gross Domestic Product - Measurement of National Income - Consumptions, savings and investments. Theory of Employment- Type of unemployment- Labour and Population theories- Definition of capital and growth of capital- Steps in capital formation. Money - Definition and functions of money- Quantity theory of money. Public Finance- Principle of taxation-Effect of taxation on production and distribution-Deficit financing system

Unit V**(14 Hrs)**

Monetary and Fiscal Policies– measures of money stock – policy and money supply – instruments of monetary policy – fiscal policy – the union budget – state budgets – finances of the union and the states – the Finance commission – importance of the budget

Text Book

S.No	Author Name	Book Name	Publisher	Year and edition
1	Francis Cherunilam	Business Environment(Unit V)	Himalaya Publishing House, Mumbai – 04	2017,25 th Edition
2	Shankaran S	Business Economics (Unit IV)	Margham PublicationsCh -17	2012,3 rd Edition
3	Sundharam KPM Sundharam E N	Business Economics (Unit I-IV)	Sultan Chand & Sons -New Delhi – 02.	2015 Edition

Reference Books

S. No	Authors	Title	Publishers	Year of Publication
1.	Chaudhary C.M	Business Economics	RBSA ublishers - Jaipur- 03.	2015 Edition
2.	Mehta P.L	Managerial Economics– Analysis,Problems & Cases	Sultan Chand & Sons -New Delhi – 02.	2015, 14 th Edition

Skill Components

- Examine case studies in budgeting
- Demonstrate specialised knowledge of economic theories and methodologies in facing the diverse challenges of competitive business environment.
- Identify the contributions of the notable economic thinkers and their relevance to current methodological developments.
- Demonstrate knowledge on the determinants of macro-economic conditions, interaction of monetary and fiscal operations, business policies and strategies in economic development.
- Evaluate the economic role of financial markets and systems in enabling inclusive growth.

Pedagogy

Lecture, Presentation, Quiz, Assignment, Group Discussion and Seminar

Course Designers:

1. Dr.A.Karthika
2. Ms.S.Yesodha

COURSE NUMBER	COURSE NAME	CATEGORY	L	T	P	CREDIT
DA20A01	CORPORATE GOVERNANCE	Theory	71	4	-	5

Preamble

- To analyse corporate governance mechanism and principles
- To understand the code and guidelines of corporate governance

Prerequisite

- No prerequisite required

Course Outcome

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Define and understand the various laws of economics	K1
CO2	Demonstrate different market structure and pricing policy	K2
CO3	Interpret and Develop Economic theories and policies	K3

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	L	S	L
CO2	S	M	L	S	L
CO3	S	M	M	M	L

S - Strong; M - Medium; L - Low

Syllabus

Unit I

(14 Hrs)

Introduction to Economics – Wealth, Welfare and Scarcity Views on Economics - Positive and Normative Economics. Definition – Scope and Importance of Business Economics. Concepts: Production Possibility frontiers – Opportunity Cost – Accounting Profit and Economic Profit – Incremental and Marginal Concepts – Time and Discounting Principles – Concept of Efficiency

Unit II

(14 Hrs)

Demand and Supply Functions: Meaning of Demand – Determinants and Distinctions of demand – Law of Demand – Elasticity of Demand – Demand Forecasting – Supply concept and Equilibrium. Consumer Behaviour: Law of Diminishing Marginal utility – Equi-marginal Utility – Indifference Curve – Definition, Properties and equilibrium

Unit III**(14 Hrs)**

Production: Law of Variable Proportion – Laws of Returns to Scale – Producer’s equilibrium – Economies of Scale. Cost Classification – Break Even Analysis. Product Pricing: Price and Output Determination under Perfect Competition, Monopoly – Discriminating monopoly – Monopolistic Competition – Oligopoly – Pricing objectives and Methods

Unit IV**(15 Hrs)**

National Income - Gross National Product -Net National Product – Gross Domestic Product - Measurement of National Income - Consumptions, savings and investments. Theory of Employment- Type of unemployment- Labour and Population theories- Definition of capital and growth of capital- Steps in capital formation. Money - Definition and functions of money- Quantity theory of money. Public Finance- Principle of taxation-Effect of taxation on production and distribution-Deficit financing system

Unit V**(14 Hrs)**

Monetary and Fiscal Policies– measures of money stock – policy and money supply – instruments of monetary policy – fiscal policy – the union budget – state budgets – finances of the union and the states – the Finance commission – importance of the budget

Text Book

S.No	Author Name	Book Name	Publisher	Year and edition
1	Francis Cherunilam	Business Environment(Unit V)	Himalaya Publishing House, Mumbai – 04	2017,25 th Edition
2	Shankaran S	Business Economics (Unit IV)	Margham PublicationsCh -17	2012,3 rd Edition
3	Sundharam KPM Sundharam E N	Business Economics (Unit I-IV)	Sultan Chand & Sons -New Delhi – 02.	2015 Edition

Reference Books

S. No	Authors	Title	Publishers	Year of Publication
1.	Chaudhary C.M	Business Economics	RBSA ublishers - Jaipur- 03.	2015 Edition
2.	Mehta P.L	Managerial Economics– Analysis,Problems & Cases	Sultan Chand & Sons -New Delhi-02.	2015, 14 th Edition

Skill Components

- Examine case studies in budgeting
- Demonstrate specialised knowledge of economic theories and methodologies in facing the diverse challenges of competitive business environment.

- Identify the contributions of the notable economic thinkers and their relevance to current methodological developments.
- Demonstrate knowledge on the determinants of macro-economic conditions, interaction of monetary and fiscal operations, business policies and strategies in economic development.
- Evaluate the economic role of financial markets and systems in enabling inclusive growth.

Pedagogy

Lecture, Presentation, Quiz, Assignment, Group Discussion and Seminar

Course Designers:

1. Dr.A.Karthika
2. Ms.S.Yesodha

COURSE NUMBER	COURSE NAME	CATEGORY	L	T	P	CREDIT
DA20CP3	COMPUTER APPLICATION PRACTICAL III – DATABASE PROGRAMMING	Practical	-	3	57	2

Preamble

- To enhance practical knowledge in Database Management using SQL, MongoDB

Prerequisite

- No prerequisite required

Course Outcome

On the successful completion of the course, students will be able to analyse the data using query

CO Number	CO Statement	Knowledge Level
CO1	Enumerate and demonstrate the database in SQL, MONGODB	K1
CO2	Construct data definition and data manipulation languages in SQL	K2
CO3	Understand Mongo as a data store & be comfortable with Mongo's query and update languages	K3
CO4	Apply the concepts of weka	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	S	S	L
CO2	S	S	S	S	L
CO3	S	S	S	S	L
CO4	S	M	M	M	L

S - Strong; M - Medium; L - Low

Syllabus

1. Normalize the following dataset:
 - a) Employee database
2. Data Definition Language and Data Manipulation Language
Table: Student
Regno number (5) primary key
Studname varchar2 (15)
Gender char (6)
Deptname char (15)
Address char (25)
Percentage number (4, 2)
Queries:
 - a) To create a table, describe a table, alter a table, drop a table, and truncate a table
 - b) To insert values, retrieve records, update records, delete records
3. Create an Employee table with following field.
Eno number (5) primary key
Ename varchar2 (20) not null
Deptno number (2) not null
Desig char (10) not null
Sal number (9, 2) not null
Comm. number (7, 2) null
Queries:
 - a) Insert values and display the records
 - b) Display sum, maximum amount of basic pay
 - c) List the name of the clerks working in the department 20
 - d) Display name that begins with 'G'
 - e) List the names having 'I' as the second character
 - f) List the names of employees whose designation are 'Analyst' and 'Salesman'
 - g) List the different designation available in the Employee table without duplication (distinct)
4. Create a student table with the following fields
Stuno number (5) primary key
Stunm Varchar2 (20)
Age number (2)
Mark1 number (3)
Mark2 number (3)
Mark3 number (3)
Queries:
 - a) Insert values and display the records
 - b) List the names and age of the student whose age is more than 12
 - c) Display total and average of marks
 - d) Display the names of the maximum total & minimum total student
 - e) List the names of the student that ends with 'A'
 - f) List the names of student whose names have exactly 5 characters
5. Create the table PAYROLL with the following fields and insert the values:
Emplno number (8)

Emplname	varchar2 (8)
Dept	varchar2 (10)
Baspay	number (8, 2)
HRA	number (6, 2)
DA	number (6, 2)
Pf	number (6, 2)
Netpay	number (8, 2)

Queries:

- a) Update the records to calculate the net pay.
 - b) Arrange the records of the employees in ascending order of their net pay.
 - c) Display the details of the employees whose department is "Sales".
 - d) Select the details of employees whose HRA \geq 1000 and DA \leq 900.
 - e) Select the records in descending order.
6. Create a Table Publisher and Book with the following fields:

Table: publisher

Pubcode	Varchar2 (5)
Pubname	Varchar2 (10)
Pubcity	Varchar2 (12)
PubState	Varchar2 (10)
Bookcode	Varchar2 (5)

Table: Book

Booktitle	Varchar2 (15)
Bookcode	Varchar2 (5)
Bookprice	Varchar2 (5)

Queries:

- a) Insert the records into the table publisher and book.
 - b) Describe the structure of the tables.
 - c) Show the details of the book with the title "DBMS".
 - d) Show the details of the book with price $>$ 300.
 - e) Show the details of the book with publisher name "Kalyani".
 - f) Select the book code, book title; publisher city is "Delhi".
 - g) Select the book code, book title and sort by book price.
 - h) Count the number of books of publisher starts with "Sultan chand".
 - i) Find the name of the publisher starting with "S".
7. Create Orders table and customers table with following fields:

Table: order

Orderid	number (10)
Customerid	number (5)
Orderdate	date

Table: customers

Customerid	number (5)
Custname	varchar2 (10)
Contactname	varchar2 (10)
Country	varchar2 (10)

- a) Perform INNER JOIN, that selects records that have matching values in both tables
- b) Perform LEFT JOIN, that selects records that have matching values in both tables
- c) Perform RIGHT JOIN, that selects records that have matching values in both tables

8. Create Customer Table and supplier table with following fields:

Table: Customer
cusid number(10)
FirstName varchar2 (10)
LastName varchar2 (10)
City varchar2 (10)
Country varchar2 (10)
Phonenumber (10)

Table: Supplier
Supid number (10)
CompanyName varchar2 (10)
ContactName varchar2 (10)
City varchar2 (10)
Country varchar2 (10)
Phonenumber (10)
Fax number (10)

- a) Insert the records into the table customer and supplier.
- b) Describe the structure of the tables.
- c) List details of customer table and supplier table.
- d) Perform full outer join from customer on supplier table order by country

MONGODB:

9. Create a Student Database in MongoDB using “use” Command.
10. Create program using crud operation using MongoDB.
11. Create program text search and indexes using MongoDB.
12. Create the replica set in the mongo shell and test the configuration

WEKA:

13. Demonstration of preprocessing on dataset student.arff
14. Demonstration of classification rule process on dataset employee.arff using j48 algorithm
15. Demonstration of clustering rule process on dataset iris.arff using simple k-means
16. Demonstration of association rule process on dataset test.arff using apriori algorithm.

Pedagogy

- Demonstration through System, Demonstration through PPT

Course Designers:

1. S. Deepika
2. Dr.M.Rajeswari

COURSE NUMBER	COURSE NAME	CATEGORY	L	T	P	CREDIT
DA20C07	PYTHON	CORE	56	4	-	4

Preamble

- To introduce Python concepts and to develop programming skills in Python Programming

Prerequisite

- No prerequisite required

Course Outcome

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Relate Python concepts with Datasets	K1
CO2	Recognize algorithms and Pandas	K2
CO3	Identify various quantitative analysis techniques	K3
CO4	Demonstrate the analyzed result with visualization	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	S	S
CO2	S	M	S	S	M
CO3	M	S	S	M	M
CO4	M	S	S	M	M

S - Strong; M - Medium; L - Low

Syllabus

Unit I

(11 Hrs)

Setting up Python-Your First Python Program– Data Types: Values and Variables- Expression and Arithmetic-Conditional Expressions and Iterations- **Functions:** Using functions- Writing functions and More on Functions

Unit II

(11 Hrs)

Lists – Tuples – Sets - Dictionaries. Comprehension: Working with files and dictionaries-List Comprehensions-Dictionary Comprehensions- Set Comprehension

Unit III**(11 Hrs)**

Strings: Various String Methods-Slicing a string – Strings versus bytes, Regular expression- closure and generators – classes and iterators– Advanced iterators

Unit IV**(12 Hrs)**

NumPy Basics:Arrays and Vectorized Computation: NumPy ndarray-File Input and Output with Array -**Getting started with Pandas:** Introduction to Pandas Datastructures-Handling Missing Data-Hierarchical Indexing-**Data Wrangling:** Clean, Transform, Merge Reshape:Combining and Merging Dataset, Data Transformation, String Manipulation

Unit V**(11 Hrs)**

Plotting and Visualization: A brief matplotlib API primer-Plotting functions in pandas-Line plot, Bar plot, Histogram and Scatter plot-**Time Series:** Basics-time zone handling-Resampling and Frequency Conversion-Time Series plotting

Text Book

S.No	Author Name	Book Name	Publisher	Year and edition
1	Richard L.Haltman	Learning to Program with Python-(Unit 1,2,3)	Richard Publishing	Revised Edition
2	Phuong Vo. T.H.,Martin Czygan	Getting started with Python Data Analysis-(Unit 4,5)	Packt Publishing	2015

Reference Books

S. No	Authors	Title	Publishers	Year of Publication
1.	Allen Downey	Think Python	Green Tea Press Needham, Massachusetts	Revised Edition

Skill Components

- Examine case studies in budgeting
- Demonstrate specialised knowledge of economic theories and methodologies in facing the diverse challenges of competitive business environment.
- Identify the contributions of the notable economic thinkers and their relevance to current methodological developments.
- Demonstrate knowledge on the determinants of macro-economic conditions, interaction of monetary and fiscal operations, business policies and strategies in economic development.
- Evaluate the economic role of financial markets and systems in enabling inclusive growth.

Pedagogy

Demonstration through System, Demonstration through PPT

Course Designers:

1. Dr.M.Rajeswari
2. S.Deepika

COURSE NUMBER	COURSE NAME	CATEGORY	L	T	P	CREDIT
CM20C08	BUSINESS LAW	Theory	86	4	-	4

Preamble

- To provide students with an understanding of general principles of law of contract and special contracts

Prerequisite

- No prerequisite knowledge required

Course Outcome

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	State the fundamental rules of commercial law applicable to all the business context	K1
CO2	Understand the different elements of business and legal terminology of procedures in this current scenario	K2
CO3	Identify the corporate and legal perspectives involved in all business transactions	K2
CO4	Examine the rules regarding the administration of agreements relating to the business activities	K3
CO5	Apply the various principles of contracts and interpret the legal issues	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	M	S	S	M
CO2	S	S	S	S	S
CO3	S	S	S	M	S
CO4	S	M	S	S	M
CO5	S	S	S	M	S

S - Strong; M - Medium; L - Low

Syllabus

Unit I

(17 Hrs)

Indian Contract Act 1872 – Meaning of Contract – Definition – Obligation & Agreement- Nature of Contract & Classification – Components of Valid Contract- Offer & Acceptance - Consideration – Capacity to Contract

Unit II

(17 Hrs)

Free Consent – Unlawful Agreements – Quasi Contracts - Different Modes of Discharge of Contract – Remedies of Breach – Principles for awarding Damages

Unit III

(17 Hrs)

Contract of Indemnity & Guarantee, Essential elements of Indemnity and Guarantee. Rights of Surety – Discharge of Surety. Bailment & Pledge – Rights & Duties of Bailor & Bailee Rights and Liabilities of Finder of Lost Goods

Unit IV

(18 Hrs)

Sale of Goods Act 1930 – Sale & Agreements to Sell – Rules Regarding Passing of Property in Goods – Conditions & Warranties – Actual & Implied -Principle of “Caveat Emptor” and its Limitations – Rights of Unpaid Vendor.Law of Agency – Kinds of Agency – Rights & Liabilities of Principal and Agent

Unit V

(17 Hrs)

Contract of Insurance - Nature and Fundamental Principles of Insurance – Life Insurance- Fire insurance – Marine Insurance - Policy claims - IRDA and its functions

Text Book

S.No	Author Name	Book Name	Publisher	Year and edition
1	Kapoor N.D	Business Law	Sultan Chand & sons	Latest edition

Reference Books

S. No	Authors	Title	Publishers	Year of Publication
1.	Pillai. R.S.N & Bagavathi. B	Business Law	S.Chand& Co	Latest edition
2	Tulsian	Business Law	Tata McGraw-Hill	Latest edition

Skill Components

- Preparation of different types of Contract and to develop the working knowledge on execution of the same.

- Apply the regulatory framework on various laws pertaining to business and sale of goods in real case analysis.
- Framing a sample legal deed of understanding between bailor and bailee
- Analyse the significant aspects in IRDA and calculate the claim of the insured

Pedagogy

PPT presentations, Group Discussion, Seminar, Quiz , Assignment, Experience Discussion, Brainstorming, Activity, Case Study

Course Designers:

1. Dr. L. Nithya, Department of Commerce
2. Dr. B.Thulasi Priya, Department of Commerce

COURSE NUMBER	COURSE NAME	CATEGORY	L	T	P	CREDIT
CM20C09	BUSINESS FINANCE	Theory	86	4	-	4

Preamble

- To Understand the Concepts of Business Finance and their Applications for Managerial Decision Making

Prerequisite

- No prerequisite knowledge required

Course Outcome

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	State the concepts and approaches in finance	K1
CO2	Determine the alternative sources of funds and its effective utilisation	K2
CO3	Demonstrate the possibilities for the optimum acquisition and application of the financial resources	K3
CO4	Analyse the techniques required to select the feasible financial requirements of a Business Concern	K3
CO5	Apply the concepts and tools of the financial decisions for adequate returns to the shareholders	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	M
CO2	S	S	M	M	M
CO3	S	S	M	M	M
CO4	S	S	M	M	M
CO5	S	S	M	M	M

S - Strong; M - Medium; L - Low

Syllabus

Unit I (17 Hrs)

Business Finance – Meaning and Definition – Approaches to Finance Function – Fixed and variable objectives of Financial Management – Scope – Financial Decisions. Sources of Finance. Financial Planning – Objectives – Characteristics – Steps in financial planning – Estimation of Long Term and Short-Term Financial Needs – Limitations of Financial Planning. Time Value of money – Practical Applications of Time Value Techniques

Unit II (17 Hrs)

Capital Budgeting – Meaning – Need – Importance – Kinds and Process of Capital Budgeting – Methods of Capital Budgeting (Traditional and Modern methods only). Cost of Capital – Meaning – Significance – Classification of Cost – Computation of Cost of Capital: Cost of Debt, Preference, Equity, Retained Earnings and Weighted average Cost of Capital

Unit III (17 Hrs)

Capital Structure – Introduction – Importance – Factors Determining the Capital Structure Theories of Capital Structure: Net Income Approach- Net Operating Income Approach- Traditional Approach and Modigliani and Miller Approach. Leverage – Meaning – Types of Leverage – Impacts of Financial Leverage - Significance and Limitations

Unit IV (18 Hrs)

Capitalisation – Concept – Need- Theories of Capitalisation – Fair capitalization – Over Capitalization – Under Capitalization – Watered Stock – Over Trading and Under Trading. Working Capital Management – Meaning – Classification-Importance- Factors Determining the Working Capital Requirements – Management of Working Capital – Methods of Estimating Working Capital Requirements

Unit V (17 Hrs)

Receivables Management – Forming of credit policy. Inventory Management – Tools and Techniques. Dividend Policy – Determinants of Dividend Policy – Types of Dividend Policy – Advantages and Disadvantages of Stable Dividend Policy – Theory of Relevance and Irrelevance

***Theory Only**

Distribution of marks: Theory 40% Problems 60%.

Text Book

S.No	Author Name	Book Name	Publisher	Year and edition
1	Shashi. K. Gupta Sharma R. K	Financial Management	Kalyani Publishers	2018

Reference Books

S. No	Authors	Title	Publishers	Year of Publication
1.	Ravi. M. Kishore	Financial Management – Problems and solutions	Taxmann Publications Pvt. Ltd	2017 Edition
2	Khan & Jain	Financial Management	Tata McGraw Hill	2018
3	Maheshwari S. N	Financial Management	Sultan Chand & Sons	15 th Edition 20

Skill Components

- Preparation of financial planning for the concern
- Application of time value techniques to the real situations
- Analyse the capital structure of different companies belong to different industries
- Estimate the cost of capital for the funds raised by the company
- Application of capital budgeting techniques to select the project proposals.
- Analyse the financial statements and Estimate the working capital requirements of the company.

Pedagogy

- Lecture, Group Discussion, Case study, Role playing, Activity based learning

Course Designers:

1. Dr. D. Vijayalakshmi, Department of Commerce
2. Dr. B. Thulasipriya, Department of Commerce

COURSE NUMBER	COURSE NAME	CATEGORY	L	T	P	CREDIT
DA20A03	BUSINESS DATA MINING	Allied	71	4	-	5

Preamble

- To understand data mining techniques and algorithm in business analytics.
- To apply data preprocessing techniques and tools to solve business problems

Prerequisite

- No prerequisite knowledge required

Course Outcome

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Identify the data model and its operation	K1
CO2	Classify the basic concepts and techniques of Data Mining	K2
CO3	Apply data mining tool for solving practical business problem	K3
CO4	Algorithms and concepts for real time execution	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	L	M	M
CO2	M	S	M	L	L
CO3	M	M	S	S	L
CO4	S	M	M	S	L

S - Strong; M - Medium; L - Low

Syllabus**Unit I (14 Hrs)**

Data Mining Introduction-Data Warehousing and Online Analytical Processing-Introduction to Knowledge Discovery from Databases – **Data Preprocessing** – Data Cleaning – Data Integration and Transformation – Data Reduction – Data Discretization and Concept Hierarchy Generation

Unit II (14 Hrs)

Association Rule Mining: Market Basket Analysis-Frequent, Closed, Association Rules-**Frequent Itemset Mining Methods:** Apriori Algorithm, Generating frequent itemset, Pattern growth approach-Correlation Analysis

Unit III (14 Hrs)

Classification: Decision tree induction-Bayes Classification-Rule Based Classification-Model Evolution and Selection-Techniques to Improve Classification Accuracy

Unit IV (14 Hrs)

Clustering: Clustering Analysis- Partitioning method-Hierarchical Method-Density based method-Grid based method- Evaluation Clustering

Unit V (15 Hrs)

Outlier Detection: Outlier and Analysis-Outlier Detection-Statistical Approaches-Proximity based approaches-Clustering and classification based approaches-Outlier detection in high dimension

Text Book

S.No	Author Name	Book Name	Publisher	Year and edition
1	Jiawei Han, Micheline Kamber and Jian Pei	Data Mining: Concepts and Techniques	Morgan Kaufman	2012,3 rd Edition

Reference Books

S. No	Authors	Title	Publishers	Year of Publication
1.	Ian H. Witten and Eibe Frank	Data Mining: Practical Machine Learning Tools and Techniques	Morgan Kaufman publications	2016, 4 th Edition
2	M. H. Dunham	Data Mining: Introductory and Advanced Topics	Imprint Pearson Education	2011 4 th Impression
3	Arun K. Pujari	Data Mining Techniques	Universities Press (India) Pvt. Ltd.	2013, Kindle Edition

Skill Components

- Identify the concept of using data in real time
- Analyze the fact of using algorithms incorporation in programming.
- Interpret various techniques to develop a well determined pattern.
- Applying the concept of statistical basis in data

Pedagogy

- Demonstration through System, PPT, Quiz, Assignment, Group Discussion, Seminar

Course Designers:

1. Dr.M.Rajeswari
2. S.Deepika

COURSE NUMBER	COURSE NAME	CATEGORY	L	T	P	CREDIT
DA20A04	BUSINESS INTELLIGENCE	CORE	71	4	-	5

Preamble

- To equip knowledge on technical components of Business Intelligence

Prerequisite

- Basic knowledge in business operations

Course Outcome

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Relate the marketing activities with theoretical marketing concepts	K1
CO2	Recognize the marketing strategies, quantitative analysis and optimization technique	K2
CO3	Identify various modern marketing techniques & problem solving techniques	K3
CO4	Identify the emerging trends	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	M	M	L
CO2	S	M	S	S	S
CO3	S	M	M	M	S
CO4	S	M	M	M	S

S - Strong; M - Medium; L – Low

Syllabus**Unit I****(14 Hrs)**

Introduction to Business Intelligence: Framework for Business Intelligence–Intelligence Creation–Transaction Processing Versus Analytic Processing–Major Tools and Techniques of BI

Unit II**(15 Hrs)**

Business Performance Management –Strategize–Plan–Monitor–Performance Measurement–BPM Methodologies–Performance Dashboards and Scorecards

Unit III**(14 Hrs)**

Text and web mining – text mining concepts and definitions – natural language processing – text mining applications – text mining process – text mining tools – web mining overview – web content mining and web structure mining – web usage mining – web mining success stories

Unit IV**(14 Hrs)**

Business Intelligence Implementation: Integration and Emerging Trends– Implement BI– BI and Integration implementation –Connecting BI systems to Databases and other enterprise systems

Unit V**(14 Hrs)**

On-Demand BI–Issues of Legality, Privacy and Ethics–Emerging Topics in BI – the web2.0 revolution – online social networking – virtual worlds – social networks and BI: collaborative decision making – RFID and new BI application opportunities – reality mining

Text Book

S.No	Author Name	Book Name	Publisher	Year and edition
1	Efraim Turban Ramesh ShardaDursun Delen David King	Business Intelligence – A Managerial Approach	Pearson	2012, 2 nd Edition
2	Stuart Russel and Peter Norvig	Artificial Intelligence: A Modern Approach	Prentice Hall	2009, 3 rd edition

Skill Components

- Identify the concept of Business Intelligence and its framework
- Understand the technique of BI
- Infer the knowledge of mining.
- Applying the concept of visualization and it BI trends

Pedagogy

- Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

Course Designers:

1. S.Deepika
2. Dr.M.Rajeswari

COURSE NUMBER	COURSE NAME	CATEGORY	L	T	P	CREDIT
DA20CP4	COMPUTER APPLICATION PRACTICAL IV - PYTHON	Practical	-	4	56	2

Preamble

- To explore and acquire skills in Python Programming

Prerequisite

- Basic knowledge of Computers

Course Outcome

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1.	Relate statistical calculations	K1
CO2.	Describe pandas	K2
CO3.	Demonstrate the data structure	K3
CO4.	Apply plotting graphs	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	L	M	L
CO2	S	M	M	S	M
CO3	S	M	L	M	L
CO4	S	M	L	L	L

S - Strong; M - Medium; L - Low

Syllabus

1. Word frequency analysis

Exercise 1.1. Write a program that reads a file, breaks each line into words, strips whitespace and punctuation from the words, and converts them to lowercase.

Exercise 1.2. Go to Project Gutenberg (<http://gutenberg.org>) and download your favorite out-of-copyright book in plain text format. Modify your program from the previous exercise to read the book you downloaded, skip over the header information at the beginning of the file, and process the rest of the words as before.

Then modify the program to count the total number of words in the book, and the number of times each word is used. Print the number of different words used in the book. Compare different books by different authors, written in different eras. Which author uses the most extensive vocabulary?

Exercise 1.3. Modify the program from the previous exercise to print the 20 most frequently-used words in the book.

Exercise 1.4. Modify the previous program to read a word list (see Section 9.1) and then print all the words in the book that are not in the word list. How many of them are typos? How many of them are common words that should be in the word list, and how many of them are really obscure?

2. Random numbers

Exercise 2.1. Write a function named `choose_from_hist` that takes a histogram as defined in and returns a random value from the histogram, chosen with probability in proportion to frequency.

3. Word histogram

Exercise 3.1. reads a file and builds a histogram of the words in the file

Exercise 3.2. reads `emma.txt`, which contains the text of *Emma* by Jane Austen.

Exercise 3.3. updates the histogram by creating a new item or incrementing an existing one.

Exercise 3.4. count the total number of words in the file by add up the frequencies in the histogram.

4. Most common words

Exercise 4.1. find the most common words by applying the DSU pattern; `most_common` takes a histogram and returns a list of word-frequency tuples, sorted in reverse order by frequency

Exercise 4.2. prints the ten most common words

5. Optional parameters

Exercise 5.1. prints the most common words in a histogram

6. Dictionary subtraction

Exercise 6.1. Python provides a data structure called set that provides many common set operations. Read the documentation at [http:// docs. python. org/ 2/ library/ stdtypes. html#types- set](http://docs.python.org/2/library/stdtypes.html#types-set)

Exercise 6.2. Write a program that uses set subtraction to find words in the book that are not in the word list.

Solution: [http:// thinkpython. com/ code/ analyze_ book2. py](http://thinkpython.com/code/analyze_book2.py) .

7. Random words

Exercise 7.1: Use keys to get a list of the words in the book, Build a list that contains the cumulative sum of the word frequencies. The last item in this list is the total number of words in the book, n, Choose a random number from 1 to n. Use a bisection search to find the index where the random number would be inserted in the cumulative sum, Use the index to find the corresponding word in the word list.

Exercise 7.2. Write a program that uses this algorithm to choose a random word from the book.
Solution: [http:// thinkpython. com/ code/ analyze_ book3. py](http://thinkpython.com/code/analyze_book3.py).

8. Markov analysis

- read a text from a file and perform Markov analysis
- Add function to the previous program to generate random text based on the Markov analysis.
- Finally mashup:

Solution:<http://thinkpython.com/code/markov.py>.

You will also need <http://thinkpython.com/code/emma.txt>.

9. docstrings for polygon, arc and circle.

Draw a stack diagram that shows the state of the program while executing `circle(bob,radius)`.
Solution: [http:// thinkpython. com/ code/ polygon. py](http://thinkpython.com/code/polygon.py) .

10. Draws an Archimedian spiral.

Read about spirals at [http:// en. wikipedia. org/ wiki/ Spiral](http://en.wikipedia.org/wiki/Spiral), then (or one of the other kinds).
Solution: [http:// thinkpython. com/ code/ spiral. py](http://thinkpython.com/code/spiral.py) .

Pedagogy

- Demonstration through System, Demonstration through PPT

Course Designers:

1. Dr.M.Rajeswari
2. S. Deepika

COURSE NUMBER	COURSE NAME	CATEGORY	L	T	P	CREDIT
DA19SB01	Skill Based Subject – Java & Linux Fundamentals	Theory	58	2	-	4

Preamble

- To explore and acquire skills in Java and Linux Programming

Prerequisite

- Basic knowledge of Computers

Course Outcome

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Define the fundamental programming concepts of Java	K1
CO2	Describe Operators, Branching & Looping statements	K2
CO3	Apply the concept of Class and inheritance	K3
CO4	Infer on basics of Linux	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	L	M	M
CO2	S	M	M	S	M
CO3	S	M	L	M	S
CO4	S	M	L	M	M

S - Strong; M - Medium; L - Low

Syllabus

Unit I

(12 Hrs)

C++ Vs JAVA, JAVA and Internet and WWW, JAVA support systems, JAVA environment, JAVA program structure, Tokens, Statements, JAVA virtual machine, Constant & Variables, Data Types, Declaration of Variables, Scope of Variables, Symbolic Constants, Type Casting. **Operators** : Arithmetic, Relational, Logical Assignments, Increment and Decrement, Conditional, Bitwise, Special, Expressions & its evaluation. If statement, if...else... statement, Nesting of if...else... statements, else...if Ladder, Switch, ? operators, Loops– While, Do, For, Jumps in Loops, Labeled Loops

Unit II**(12 Hrs)**

Defining a Class, Adding Variables and Methods, Creating Objects, Accessing Class Members, Constructors, Methods Overloading, Static Members, Nesting of Methods. **Inheritance:** Extending a Class, Overriding Methods, Final Variables and Methods, Final Classes, Finalize Methods, Abstract methods and Classes, Visibility Control

Unit III**(12 Hrs)**

Arrays: One Dimensional & two Dimensional, strings, Vectors, wrapperClasses, Defining Interface Extending Interface, Implementing Interface, Accessing Interface Variable, System Packages, Using System Package, Adding a Class to a Package, Hiding Classes

Unit IV**(11 Hrs)**

Packages - Creating Threads, Extending the Threads Class, Stopping and Blocking a Thread, Life Cycle of a Thread, Using Thread Methods, Thread Exceptions, Thread Priority, Synchronization, Implementing the Runnable Interface

Unit V**(11 Hrs)**

Linux Basics: Introduction to Linux, Managing Files and Directories: FileSystem of the Linux, File Compression and Archiving. Managing Directories: Creating Directories, Deleting Directories, Dot Directories. General usage of Linux kernel & basic commands: Shell Prompt Terms, Opening and using a Shell Prompt, pwd, ls, cp, mv, head Command, tail Command, cat, grep, chmod

Text Book

S.No	Author Name	Book Name	Publisher	Year and edition
1	E.Balaguruswamy	Programming in Java	TMH Publications	2 nd Edition
2	Red Hat	Red Hat Enterprise Linux 4-System administration guide copy	Red Hat, Inc	2005

Reference Books

S. No	Authors	Title	Publishers	Year of Publication
1.	Peter Norton	Peter Norton Guide to Java Programming	Tech media Publ	2014, Reprint

Skill Components

- Basic concepts of fundamental programming concepts of Java
- Java Programs based on Operators, Branching & Looping statements
- Apply the concept of Class and inheritance
- Basics of Linux and its commands
- Identifying the commands for managing directories.

Pedagogy

- Lecture, PPT, Quiz, Assignment, Group Discussion, Seminar

Course Designers:

- S. Deepika
- Dr.M.Rajeswari

COURSE NUMBER	COURSE NAME	CATEGORY	L	T	P	CREDIT
DA19SBP1	Skill Based Subject – Java & Linux Fundamentals	SBS - Practical	-	2	28	2

Preamble

- To explore and acquire skills in Java and Linux Programming

Prerequisite

- Basic knowledge of Computers

Course Outcome

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand the fundamental programming concepts of Java	K1
CO2	Describe & demonstrate Class and inheritance	K2
CO3	Apply the various operations and logics	K3
CO4	Infer basic commands in Linux	K4

Mapping with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5
CO1	S	S	L	M	M
CO2	S	M	M	S	M
CO3	S	M	L	M	S
CO4	S	M	M	M	S

S - Strong; M - Medium; L - Low

Syllabus

Java

- Write a program to find the largest of n natural numbers.
- Write a program to find whether a given number is prime or not.
- Write program to display Fibonacci series
- Write a program to create an array of 10 integers. Accept values from the user in that

array. Input another number from the user and find out how many numbers are equal to the number passed, how many are greater and how many are less than the number passed.

5. Write java program for the following matrix operations:
 - a. Addition of two matrices
 - b. Summation of two matrices
 - c. Transpose of a matrix
 - d. Input the elements of matrices from user.
6. Write a java program that computes the area of a circle, rectangle and a Cylinder using function overloading.
7. Write a Java program for the implementation of multiple inheritance using interfaces to calculate the area of a rectangle and triangle.
8. Write a program for the following string operations:
 - a. Compare two strings
 - b. Concatenate two strings
 - c. Compute length of a string

Linux

9. Execution of various file/directory handling commands.
10. Simple shell script for basic arithmetic and logical calculations.
11. Shell scripts to perform various operations on given strings.
12. Shell scripts to explore system variables such as PATH, HOME etc.
13. Write a shell script to display list of users currently logged in.
14. Write a shell script to search an element from an array using binary searching.
15. Write a shell script to generate mark sheet of a student. Take 3 subjects, calculate and display total marks, percentage and Class obtained by the student

Pedagogy

- Demonstration through System, Demonstration through PPT

Course Designers:

1. S.Deepika
2. Dr.M.Rajeswari

JOB ORIENTED COURSE

BUSINESS VISUALISATION ANALYSIS

SUBJECT CODE – JOB1648

Hours: 60

Objectives:

- To instruct theoretical and practical knowledge in business visualization software.

UNIT I

Tableau: Introduction and Getting Started: Tableau Desktop's role in the Tableau product line – Application terminology – Tableau Packaged Workbooks – Publishing to Tableau Server (Web) – Publishing to Tableau Reader – Publishing to Tableau Public – Publishing to PDF. Best Practices in Connecting to Data: Working with Meta data – Data source changes – Overview of other connection options. Working with Data: Filtering your data – Sorting – Building groups – Building hierarchies – Sets

UNIT II

Building Visualizations: Building Bar Charts – Building Text Tables – Building Line Charts – Building Scatter Plots – Building Heat Maps – Building Gantt Bar Charts – Building Pie Charts – Building Tree maps – Building Box Plots – Building Packed Bubble Charts – Building Map Views. Building Dashboards: Overview of dashboards – Building your first dashboard

UNIT III

Power BI: Introducing Power BI - What is Power BI?- The parts of Power BI - The flow of work in Power BI- Using Power BI - The building blocks of Power BI – Visualizations – Datasets – Reports - A quick look at the Power BI service - Create out-of-the-box dashboards with cloud services - Refreshing data in the Power BI service.

UNIT IV

Connect to data: Data sources in Power BI Desktop - Connect to data in Power BI Desktop - Connect to datasets in the Power BI service from Power BI Desktop - Import Excel workbooks into Power BI Desktop - Connect to data using generic interfaces in Power BI Desktop - Connect to an Oracle database - Run R scripts in Power BI Desktop - Connect to CSV files in Power BI Desktop.

UNIT V

Spark Overview: Features of Apache Spark, Apache Spark Components, Spark Clusters and Files - RDD Fundamentals: Purpose and Structure of RDDs, Transformations, Actions, and DAG - **Spark SQL:** Spark SQL and DataFrame Uses, DataFrame / SQL APIs, Jobs, Stages, and Tasks, Partitions and Shuffles, Data Locality - Spark Streaming: Streaming Sources and Tasks, DStream APIs and Stateful Streams, Reliability and Fault Recovery - Spark Streaming: Basic Principles of Machine Learning, classification, regression, clustering, collaborative filtering, dimensionality reduction

Text Book

S.No	Author Name	Book Name	Publisher	Year and edition
1	Joshua N. Milligan. Unit I & II	Learning Tableau - How Data Visualization Brings Business Intelligence to Life	Packt Publishing	Revised Edition
2	Power BI : Study Material Prepared by Department Unit III – IV			
3	Spark : Study Material Prepared by Department Unit V			

Reference Books

S. No	Authors	Title	Publishers	Year of Publication
1.	George Peck	Tableau 8: The Official Guide	McGraw Hill Education	Revised Edition

PRACTICAL – BUSINESS VISUALISATION ANALYSIS

Tableau

1. Creating or modify a schedule
2. Publishing data in Tableau
3. Working with data, filter, sorting
4. Data visualization using charts and scatter plots
5. Report generation in Tableau

Power BI

6. Sales and Marketing sample for Power BI
7. Customer Profitability sample for Power BI
8. Human Resources sample for Power BI
9. Supplier Quality Analysis sample for Power BI

Spark

10. Creating RDDs from Data Files, Reshaping Data to Add Structure, Interactive Queries Using RDDs
11. Creating DataFrames, Query with DataFrame API and SQL, Caching and Re-using DataFrames, Generating Graphics and Reports
12. Creating DStreams from Sources, Operating on DStream Data, Viewing Streaming Jobs in the Web UI.