St. Joseph's College of Commerce

(Autonomous)
163, Brigade Road, Bengaluru – 560 025

Accredited with 'A++' Grade (4th Cycle) by the National Assessment and Accreditation Council (NAAC)

Recognized by the UGC as
"COLLEGE WITH POTENTIAL FOR EXCELLENCE"

Bachelor of Commerce (Analytics)

Semester V & VI

Syllabus as per National Education Policy 2020
Curriculum Framework w.e.f., 2021-2022

Academic Year 2024 – 2025

Batch 2022

St. Joseph's College of Commerce

(An Autonomous Institution affiliated to Bengaluru City University)

St. Joseph's College of Commerce (SJCC) was formerly a part of St. Joseph's College, established in the year 1882. The Commerce Department was established in the year 1949 and it became an independent college with its own building in Brigade Road in the year 1972.

The college has in its Vision a model for higher education which encourages individuals to dream of a socially just world and in its Mission a strategy to empower individuals in realizing that dream.

With an objective of imparting quality education in the field of Commerce and Management, the college has been innovating in all aspects of higher education over a long period of time. These innovations were further bolstered with the granting of autonomous status to the college by UGC in September 2005. From then on, the college has taken a lead in reforming curriculum and syllabus, examination and evaluation pattern and teaching and learning methods through the Board of Studies, the Academic Council and the Governing Council comprising of eminent academicians, industry representatives and notable alumni.

The college has undergone four cycles of NAAC accreditation starting from the year 2000 in which it secured 'five stars', next in the year 2007 an 'A' grade, in the year 2012 again an 'A' grade and recently in February 2021 an 'A++'. It is one of the very few institutions in the country to have secured A++ grade in the fourth cycle under the Revised Accreditation Framework (RAF) and the first college in Karnataka to do so. The college was declared as a 'College with Potential for Excellence' in the year 2010. In 2011, SJCC was recognized as a Research Centre by Bangalore University. The college has been ranked 65 in the National Institutional Ranking Framework (NIRF) ratings of Ministry of Education, Government of India, in 2023 and it has been the only institution from Karnataka to make it consistently to the top 100 in the country.

The college offers diverse programmes in Commerce and Business Administration. Under Commerce Studies it offers B.Com, B.Com (Professional- International Accounting and Finance), B.Com (BPM-Industry Integrated), B.Com (Travel and Tourism), B.Com (Analytics), B.Com (Professional - Strategic Finance), M.Com (Finance & Taxation/ Marketing & Analytics), M.Com (International Business) & M.Com (Financial Analysis). Under Business Administration it offers BBA, BBA

(Entrepreneurship) and BBA (Professional- Finance and Accountancy). The college also offers six one-year Post Graduate Diploma programmes.

ABOUT THE DEPARTMENT

The B.Com Department of St. Joseph's College of Commerce has efficiently streamlined all its courses to reflect an interdisciplinary approach to understanding the contemporary business environment. Its aim is to construct a strong foundation in core subjects such as Accounting, Taxation, Economics, Statistics and Auditing along with a choice of Cost Accounting, Finance, Business Analytics, Marketing and Human Resources, studied in the fifth and sixth semester. The courses are challenging, yet, rewarding for students with high aspirations. Our students have been sought after by employers for their excellent knowledge, skills and attitude, giving them an edge over their peers from other institutions. The B.Com Programme of the college is rated amongst the top 10 in the country. (India Today, AC Nielson Survey 2016).

OBJECTIVES OF THE B.COM PROGRAMME

1. *To provide conceptual knowledge and application skills in the domain of Commerce studies.*
2. *To provide knowledge in all the areas of business to be able to meet expectations of Commerce, Trade and Industry.*
3. *To sharpen the students' analytical and decision-making skills.*
4. *To provide a good foundation to students who plan to pursue professional programmes like CA, ICWAI, ACS, CFA and MBA.*
5. *To facilitate students to acquire skills and abilities to become competent and competitive in order to be assured of good careers and job placements.*
6. *To develop entrepreneurship abilities and managerial skills in students so as to enable them to establish and manage their own business establishments effectively.*
7. *To develop ethical business professionals with a broad understanding of business from an interdisciplinary perspective.*

Salient Features of four-year Bachelor of Commerce Programme with Multiple Entry and Exit Options

1. *The regulations governing the four-year Bachelor of Commerce Programme with Multiple Entry and Exit Options shall be applicable with effect from the Academic year 2021-2022.*
2. *The Bachelor of Commerce Programme shall be structured in a semester mode with multiple exit options:*

Certificate in Commerce	*On the completion of* **First Year** *(two semesters)*

Diploma in Commerce	*On the completion of* **Second Year** *(four semesters)*
Basic Bachelor Degree	*On the completion of* **Third Year** *(six semesters)*
Bachelor Degree with Honours	*On the completion of* **Fourth Year** *(eight semesters)*

***As per the current regulations, exit option is <u>only</u> after 6 semesters and 8 semesters.**

3. *The four-year undergraduate honours degree holders with research component and a suitable grade are eligible to enter the* ***Doctoral Programme*** *in a relevant discipline.*

4. *The students who exit with Certification, Diploma or Basic Bachelor Degree shall be eligible to re-enter the programme at the exit level to complete the programme or to complete the next level.*

5. *The four-year Bachelor of Commerce Programme offers a wide range of multidisciplinary courses with exposure to other disciplines, specializations and areas. The programme aptly caters to knowledge, ability, vocational, professional and skill enhancement along with focus on humanities, arts, social, physical and life sciences, mathematics, sports etc.*

6. *The four-year Bachelor of Commerce Programme combines conceptual understanding with practical engagement through lab courses, national and international field visits, internship, conferences, workshops, seminars, case study analysis, group discussions and research projects.*

7. *A wide range of* ***Skill Enhancement Courses*** *are offered in the first four semesters to enhance language and communication, logical reasoning, critical thinking, problem solving, data analytics and life skills.*

8. *In each of the first four semester students will have an option of studying a course from other disciplines. Students will be given an option to choose from a pool of* ***Open Elective Courses*** *that provide exposure to multiple disciplines and thereby making the programme truly multi-disciplinary.*

9. *Students can make a choice of a* ***specialization/elective*** *in the 3rd and the 4th year of the programme.*

I. ELIGIBILITY FOR ADMISSION

Candidates who have completed the two-year Pre-University course of Karnataka State or its equivalent are eligible for admission into this Programme.

II. DURATION OF THE PROGRAMME

*The duration of the undergraduate degree programme is **four years** (eight semesters) with multiple entry and exit options, within this period. The students can exit after the completion of **one** academic year (two-semesters) with a **Certificate** in the discipline; **Diploma** after the study of **two** academic years (four Semesters) and **Basic Bachelor Degree** after the completion of **three** academic years (six Semesters). The successful completion of **Four-Year** undergraduate Programme would lead to **Bachelor Degree with Honours in the discipline.***

III. MEDIUM OF INSTRUCTION

The medium of instruction shall be English.

IV. ATTENDANCE

a. *A student shall be considered to have satisfied the requirement of attendance for the semester, if he/she has attended not less than 75% in aggregate of the number of working periods in each of the courses, compulsorily.*

b. *A student who fails to complete the course in the manner stated above shall not be permitted to take the End Semester Examination.*

V. SUBJECTS OF STUDY: THE COMPONENTS OF CURRICULUM FOR FOUR-YEAR MULTIDISCIPLINARY UNDERGRADUATE B.COM PROGRAMME

The category of courses and their descriptions are given in the following table:

Category of Courses	Objectives/ Outcomes
Languages	*Language courses equip students with communication skills, critical and creative thinking, familiarity with issues pertaining to society and culture and skills of expression and articulation. They also provide students with a foundation for learning other courses.*
Ability Enhancement Courses	*Ability enhancement courses are the generic skill courses that enable students to develop a deeper sense of commitment to oneself and to the society and nation largely.*

Skill Enhancement Courses	*Skill Enhancement Courses enhance skills pertaining to a particular field of study to increase their employability/ self-employment. These courses may be chosen from a pool of courses designed to provide value-based and/or skill-based knowledge.*
Vocational Enhancement courses	*Vocational Enhancement courses enhance skills pertaining to a particular field of study to increase their employability/ self-employment.*
Foundation/ Discipline based Introductory Courses	*These courses will supplement in a better understanding of how to apply the knowledge gained in classrooms to societal issues.*
Major Discipline Core Courses	*Major Discipline Core Courses aim to cover the basics that a student is expected to learn in that particular discipline. They provide fundamental knowledge and expertise to produce competent and creative graduates with a strong scientific, technical and academic acumen.*
Major Discipline Elective Courses	*These courses provide more depth within the discipline itself or within a component of the discipline and provide advanced knowledge and expertise in an area of the discipline.*
Open or Generic Elective Courses	*Open or Generic Elective Courses are courses chosen from an unrelated discipline/ subject, with an intention to seek exposure beyond discipline/s of choice.*
Project work/ Dissertation/ Internship/ Entrepreneurship	*Students shall carry out project work on his/her own with an advisory support by a faculty member to produce a dissertation/ project report. Internship/ Entrepreneurship shall be an integral part of the Curriculum.*

Extension Activities	*As part of the objective of Social Concern, the College has designed a well-structured Community Outreach programme of sixty hours called 'Bembala' (Support). The programme includes rural camps, workshops, lectures and seminars, teaching programme in Govt Schools or Colleges, community service in slums and villages, awareness programme in streets, localities, slums or villages and public rallies on social issues. The College expects the students to be part of the activities organized by the College towards securing the goal of Social Concern. This programme is mandatory for the award of degree from the college.*
Extra/Co-curricular Activities	*The College has a wide range of student associations and clubs that provide space for students to develop their creative talents. The activities conducted help in developing not just the artistic and entrepreneurial talents but also helps in character building, spiritual growth, physical growth, etc. They facilitate development of various domains of mind and personality such as intellectual, emotional, social, moral and aesthetic developments. Creativity, enthusiasm, and positive thinking are some of the facets of personality development and the outcomes of these activities.*

VI. CREDIT REQUIREMENT

Credits represent the weightage of a course and are a function of teaching, learning and evaluation strategies such as the number of contact hours, the course content, teaching methodology, learning expectations, maximum marks etc.

Exit Option	Minimum Credit Requirement*
Certificate in Commerce	*51*
Diploma in Commerce	*101*
Basic Bachelor Degree	*149*
Bachelor Degree with Honours	*193*

**Credits are subject to change as per the NEP guidelines*

VII. TEACHING & EVALUATION

M.Com/MBA/MFA/MBS/MTA graduates with B.Com, B.B.A & B.B.S as basic degree from a recognized university are only eligible to teach and to evaluate the courses including part – B courses of I and II semesters (except languages, compulsory additional courses and core Information Technology related courses) mentioned in this regulation. Languages and additional courses shall be taught by the graduates as recognized by the respective board of studies.

VIII. EXAMINATION & EVALUATION

CONTINUOUS FORMATIVE EVALUATION/ INTERNAL ASSESSMENT

Total marks for each course shall be based on continuous assessment and semester end examinations. As per the decision taken at the Karnataka State Higher Education Council, the total marks for CIA and ESE as per NEP will be 40:60.

TOTAL MARKS FOR EACH COURSE	**100%**
Continuous Internal assessment – **CIA 1**	*20% marks*
Continuous Internal assessment – **CIA 2**	*20% marks*
End Semester Examination **(ESE)**	*60% marks*

EVALUATION PROCESS OF INTERNAL ASSESSMENT MARKS SHALL BE AS FOLLOWS:

a) *The first component (CIA 1) of assessment is for 20% marks. The second component (CIA 2) of assessment is for 20% marks.*

b) *During the end of the semester, end semester examination shall be conducted by the college for each course. This, forms the third and final component of assessment (C3) and the maximum marks for the final component will be 60%.*

c) *The students shall be informed about the modalities well in advance. The evaluated assignments during component* I *(CIA 1) and component* II *(CIA 2) are immediately provided to the students.*

d) *The marks of the total internal assessment shall be published on the ERP for students at the end of semester.*

e) *The internal assessment marks shall be submitted to the COE as per the date mentioned.*

f) *There shall be no minimum in respect of the internal assessment marks.*

g) *Internal assessment marks may be recorded separately. A student who has failed, shall retain the internal assessment marks as there will be no change in the CIA results scored.*

MINIMUM FOR A PASS

a. A student needs to get 40% in the end semester examination and in addition the student also should get an aggregate of overall 40% inclusive of his internal assessment to be declared as passed.

b. The student who is passed in all the end semester examinations in the first attempt is eligible for rank

c. A student who passes the semester examinations in parts or attempted supplementary exams is eligible for only Class and CGPA but not for ranking.

d. The results of students who have passed the last semester examinations but not passed the lower semester examinations shall be eligible for the degree only after completion of all the lower semester examinations.

e. *If a student fails in a subject, either in theory or practical's he/she shall appear for that subject only at any subsequent regular examination, as prescribed for completing the programme. He/she must obtain the minimum marks for a pass in that subject (theory and practical's separately) as stated above.*

CARRY OVER

Students who fail in lower semester examinations may go to the higher semesters and take the lower semester examinations as per odd or even semester in the next consecutive chance.

CLASSIFICATION OF SUCCESSFUL CANDIDATES

The ten-point grading system is adopted. The declaration of result is based on the Semester Grade Point Average (SGPA) earned towards the end of each semester or the Cumulative Grade Point Average (CGPA) earned towards the completion of all the eight semesters of the programmes and the corresponding overall grades. If some students exit at the completion of the first, second or third year of the four-year Undergraduate Programmes, with Certificate, Diploma or the Basic Degree, respectively, then the results of successful candidates at the end of second, fourth or sixth semesters shall also be classified on the basis of the Cumulative Grade Point Average (CGPA) obtained in the two, four, six or eight semesters, respectively. For award of;

- *Certificate in Business Commerce*
- *Diploma in Business Commerce*
- *Basic Bachelor's Degree in Business Commerce*
- *Bachelor's Degree with Honours in a Discipline*

TRANSFER FOR ADMISSION

Transfer for admission is permissible only for odd semesters for students of other universities and within the university.

CONDITIONS FOR TRANSFER OF ADMISSION OF STUDENTS WITHIN THE UNIVERSITY

a. *His/ her transfer admission shall be within the intake permitted to the college.*
b. *Availability of same combination of subjects studied in the previous college.*
c. *He/she shall fulfill the attendance requirements as per the University Regulation.*

d. *He/she shall complete the programme as per the regulation governing the maximum duration of completing the programme.*

CONDITIONS FOR TRANSFER ADMISSION OF STUDENTS OF OTHER UNIVERSITIES

a. *A Student migrating from any other University may be permitted to join odd semester of the degree programme provided he/she has passed all the subjects of previous semesters/years as the case may be. Such candidates must satisfy all other conditions of eligibility stipulated in the regulations of the University.*
b. *His/her transfer admission shall be within the intake permitted to the college.*
c. *He/she shall fulfill the attendance requirements as per the University Regulation.*
d. *The student who is migrating from other Universities is eligible for overall SGPA/CGPA or Class and not for ranking.*
e. *He/she shall complete the programme as per the regulation governing the maximum duration of completing the programme as per this regulation.*

Outcome Based Education (OBE)

B.Com (Analytics)

Program Educational Objectives (PEO)

Our B.Com (Analytics) program will produce graduates who will:

PEO1: *Be competent, creative and highly valued professionals in industry, academia, or government.*

PEO2: *Adapt to a rapidly changing environment with newly learnt and applied skills and competencies, become socially responsible and value driven citizens, committed to sustainable development.*

PEO3: *Act with conscience of global, ethical, societal, ecological and commercial awareness with sustainable values as is expected of professionals contributing to the country.*

PEO4: *Able to continue their professional development by obtaining advanced degrees in accounting and other professional fields.*

Programme Outcomes (PO)

After the completion of the **B.Com (Analytics)** *Programme, the student will be able to:*

PO1: Disciplinary and Inter - disciplinary Knowledge

Demonstrate *the* **understanding** *of relevant business, management and organization knowledge, both academic and professional, in line with industry standards.*

PO2: Decision Making Skill

Apply *underlying concepts, principles, and techniques of analysis, both within and outside the discipline to generate all the possible solutions and picks one that shows their understanding of the problem and the outcomes.*

PO3: Integrated Problem-solving and Research

Analyze *how parts of a whole interact with each other to produce overall outcomes in complex systems by analyzing key managerial issues in a particular industry or company and propose appropriate managerial solutions to the situation.*

PO4: Critical Thinking Skill

Evaluate *evidence, arguments, claims and beliefs by using right type of reasoning as appropriate to the situation and Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems*

PO5: Creative Thinking Skill

Develop, *implements and communicates new and worthwhile ideas using both incremental and radical concepts to make a real and useful contribution to their work*

PO6: Usage of Modern Technology and Tools

Use *tools and technologies of digital nature, communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy*

PO7: Leadership and Team Work

Develop *a vision, translate that vision into shared goals, and effectively work with others to achieve these goals.*

PO8: Ethical Conduct and Sustainability Practices

Act *responsibly and sustainably at local, national, and global levels*

PO9: Collaboration and Networking Skill

Work *collaboratively and respectfully as members and leaders of diverse teams*

PO10: Self-directed and Life – long Learning

Create *goals and monitor progress toward them by developing an awareness of the personal, environmental and task-specific factors that affect attainment of the goals.*

Programme Specific Outcomes (PSOs)

B.Com (Analytics)

PO 11: Developing analytical model

Develop models to identify and evaluate complex business challenges by analysing data using analytical techniques and visualising tools.

PO12: Application of analytical model

Apply appropriate analytical methods into the core business operations and to leverage data to cultivate and nourish informed decision-making.

B.COM - Honours (Analytics)									
PROGRAMME MATRIX AS PER NATIONAL EDUCATION POLICY									
Course Category	**I**	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**	**TOTAL**
Part A : Ability Enhancement Complusory Courses									
Language 3 Hrs/3 Crs	*Lan 1*	*Lan 1*	*Lan 1*	*Lan 1*	-	-	-	-	
	Lan 2	*Lan 2*	*Lan 2*	*Lan 2*	-	-	-	-	
Compulsory Course 3 Hrs/3 Crs	-	*Environmental Studies*	-	*India & Indian Constitution*	-	-	-	-	
I	**6 Crs**	**9 Crs**	**6 Crs**	**9 Crs**	-	-	-	-	**30**
Part B: Core Courses									
Discipline Specific Core Courses 4 Hrs/4 Crs	*Financial Accounting*	*Corporate Accounting*	*Financial Management*	*Business Statistics with R Programming*	*Income Tax I*	*Income Tax II*	*Corporate Tax*	*Design Thinking for Innovation*	
	Business Statistics – I	*Business Statistics - II*	*Marketing Management*	*Human Resource Management*	*Cost Accounting*	*Management Accounting*	*Principles and Practice of Auditing*	*Behavioural Finance* *	
	Mathematics	*Business Economics*	*Programming for Analytics*	*Theory and Practice of Banking*	*Data Visualization*	*Data Mining with R*	*Company Law and Secretarial Practice*	*Portfolio Management and Analysis**	
	-	-	-	-	*Operation Research*	*Goods And Services Tax*	-	-	
Open Electives Course (OEC) 3 Hrs/ 3 Crs	*Choice of Course*	*Choice of Course*	*Choice of Course*	-	-	-	-	-	
Discipline Specific Elective	-	-	-	-	**Elective 1** *Multi-Variate Data Analysis*	**Elective 2** *Text Mining*	*Elective 3*	*Elective 4*	
SEC - SB 2 Crs	*Digital Fluency*	-	*Artificial Intelligence*	*Financial Education Investment Awareness*	-	-	-	-	
VEC 3 Hrs/3 Crs	-	-	-	-	*Financial Modeling*	*Data Visualisation through Power BI*	*Choice of Course*	*Choice of Course*	
Research Methodology 4 Hrs/4 Crs	-	-	-	-	-	-	*Research Methodology*	-	
Research Proposal Formulation &	-	-	-	-	-	-	-	*Research Proposal Formulation*	
Internship 2 Crs/4 Crs	-	-	-	-	*Social Internship* **2 Crs**	*Corporate Internship* **2 Crs**	-	*Internship* * **4 Crs**	
II	**17 Crs**	**15 Crs**	**17 Crs**	**14 Crs**	**24 Crs**	**24 Crs**	**22 Crs**	**22 Crs**	**155**
Part C: Skill Enhancement Course - Value Based									
Foundation Course Extension and Extracurricular Activities 2 Crs	*Psychological Well being*	*Extension Activities 1 Cr*	*Yoga*	*Extension Activities 1 Cr*	-	-	-	-	
		Extracurricular Activities/Association/Sports 1 Cr		*Extracurricular Activities/Association/Sports 1 Cr*	-	-	-	-	
III	**2 Crs**	**2 Crs**	**2 Crs**	**2 Crs**	-	-	-	-	**8**
Total	**25 Crs**	**26 Crs**	**25 Crs**	**25 Crs**	**24 Crs**	**24 Crs**	**22 Crs**	**22 Crs**	**193**

Note: *Only students who secure 75% marks or 7.5 CGPA and above in the 1st six semesters may choose to undertake research in the 4th year.*

***Those who opt for research will have one DSC with Research Proposal Formulation & Project.*

**Other students will continue with the regular Core Courses and Internship.*

Bachelor of Commerce (Analytics)

Semester Structure as per National Education Policy

SEMESTER V

SL. No.	Course Code	Title of the Course	Category of Course	Teaching Hours per Week (L+T+P)	ESE	CIA	Total Marks	Credits
1.	*C5 21 DC 501*	*Income Tax -I*	*DSC-1*	*4+0+0*	*60*	*40*	*100*	*4*
2.	*C5 21 DC 502*	*Cost Accounting*	*DSC-2*	*4+0+0*	*60*	*40*	*100*	*4*
3.	*C5 21 DC 503*	*Data Visualization*	*DSC-3*	*4+0+0*	*60*	*40*	*100*	*4*
4.	*C5 21 DC 504*	*Operation Research*	*DSC-4*	*4+0+0*	*60*	*40*	*100*	*4*
5.	*C5 21 DE 501*	*Multi-Variate Data Analysis*	*DSE-1*	*3+0+1*	*60*	*40*	*100*	*3*
6.	*C5 21 VE 501*	*Financial Modeling*	*VEC-1*	*3+0+1*	*60*	*40*	*100*	*3*
7.	*C5 21 SO 501*	*Social Internship*	*SEC-SB*	*0+0+2*	*-*	*50*	*50*	*2*
SUB TOTAL (A)					**360**	**290**	**650**	**24**

Bachelor of Commerce (Analytics)

Semester Structure as per National Education Policy

SEMESTER VI

SL. No.	Course Code	Title of the Course	Category of Course	Teaching Hours per Week (L+T+P)	ESE	CIA	Total Marks	Credits
1.	*C5 21 DC 601*	*Income Tax II*	*DSC-1*	*4+0+0*	*60*	*40*	*100*	*4*
2.	*C5 21 DC 602*	*Management Accounting*	*DSC-2*	*4+0+0*	*60*	*40*	*100*	*4*
3.	*C5 21 DC 603*	*Data Mining with R*	*DSC-3*	*4+0+0*	*60*	*40*	*100*	*4*
4.	*C5 24 DC 604*	*Goods and Service Tax*	*DSC-4*	*4+0+0*	*60*	*40*	*100*	*4*
5.	*C5 21 DE 601*	*Text Mining*	*DSE-2*	*3+0+1*	*60*	*40*	*100*	*3*
6.	*C5 21 VE 601*	*Data Visualisation through Power BI*	*VEC-2*	*3+0+1*	*60*	*40*	*100*	*3*
7.	*UG 21 CO 601*	*Corporate Internship*	*SEC-SB*	*0+0+2*	*-*	*50*	*50*	*2*
SUB TOTAL (A)					**360**	**290**	**650**	**24**

SEMESTER - V

C5 21 DC 501- INCOME TAX – I

COURSE OBJECTIVES

This course enables the students to understand the provisions of income tax and compute income from salary and house property of an individual assessee.

Module – 1: Introduction **6 Hrs.**

Brief history of Income Tax – Legal Frame work– Ethics in Taxation -Cannons of Taxation-Finance Bill – Scheme of Income Tax, Income Tax Authorities- Income tax officer and powers and functions, CBDT- powers and functions, Commissioner of Income Tax- powers and functions, Types of assessment and rectification of mistakes, Recovery of tax and refunds. ICDS- An Overview

Module – 2: Important Definitions **10 Hrs.**

Definition: Assessee – Person – Assessment Year – Previous Year– Income – Gross Total Income – Total Income, Exempted Incomes- Agricultural Income (Including Integration of Agricultural Income with Non-Agricultural Income).

Module 3: Revenue and Capital Items **2 Hrs.**

Revenue and Capital (a) Receipts, (b) Expenditure and (c) Losses.

Module – 4: Residential Status and incidence of tax **8 Hrs.**

Residential status– Resident – Ordinary & Not ordinary and Non- Resident of individual with incidence of tax – HUF & company – Residential status only.

Module-5: Income from Salary **20 Hrs.**

Income from Salary – Features of Salary Income – Basic Salary– Allowance – Types – Perquisites – Types section 89(1) – Tax Rebate U/S 88 – Problems.

Module-6: Income from House Property **14 Hrs.**

Introduction – Annual value under different situations (self- occupied let out – partly self-occupied partly let out – portion wise and time wise) – deductions (u/s 24) – problems.

Skill Development

(These activities are only indicative, the Faculty member can innovate)

1. *Collect and fill Form No. 49A (PAN) and 49B.*
2. *Register for Filing of Income Tax Returns and File the returns*
3. *Collect the List of enclosures to be made along with IT returns (with reference to salary & H.P).*
4. *Compute tax liability for your parent / salary income person (including Allowances, perquisites and deductions)*
5. *Prepare Form-16 of your parent (or with imaginary figures)*

COURSE OUTCOMES

After completion of the course the students will be able to:

1. *Describe the canon of taxation, powers and functions of Income tax authorities, officers and commissioner and CTDT and types of assessment of individual assessee.*
2. *Define the terms connected with assessment year , previous year, exempted income from agricultural income and total income.*
3. *Compare and contrast the receipts, Expenditure and Losses of revenue and Capital nature.*
4. *Identify the residential status and incidence of tax for the computation taxable income from the perspective of Individual, HUF and Company of residential status only.*
5. *Show the computation of income from salary of an Individual assessee after taking into consideration of U/S 89(1) and 88.*
6. *Show the computation of income from House property an Individual assessee after taking into consideration of deduction U/S 24.*

Books for Reference

- *B. B. Lal: Direct Taxes, Konark Publisher (P) Ltd.*
- *B. S. Raman: Income Tax.*
- *Bhagwathi Prasad: Direct Taxes – Law and Practice, Wishwa Prakashana.*
- *Dinakar Pagare: Law and Practice of Income Tax, Sultan Chand and Sons.*
- *Dr. Girish Ahuja & Dr. Ravi Gupta: Income Tax.*
- *Dr. Mehrotra & Dr. Goyal: Direct Taxes – Law and Practice, Sahitya Bhavan Publication.*
- *Dr. Vinod K. Singhania: Direct Taxes – Law and Practice, Taxmann Publication.*

SEMESTER – V

C5 21 DC 502 - COST ACCOUNTING

COURSE OBJECTIVES

This course equips the students with basic cost accounting concepts and reconcile the cost and financial accounting statements.

Module 1: Basic Cost Concepts and Classification **5 Hrs.**

Meaning – Cost accounting – Cost accountancy – Costing – Cost accounting and management – Objectives of Cost Accounting – Cost accounting v/s Financial Accounting – Cost Accounting v/s Management Accounting – Advantages of cost accounting – Methods of costing – Techniques (types) of costing –– Cost centres(Meaning and purpose) – Cost units(Meaning and importance) – Cost accounting departments–Brief note on Cost Audit Records and Report Rules. Cost Control for business sustainability / Environmental Cost.

Module 2: Cost Concepts and Classification **12 Hrs.**

Meaning - Cost – Expenses – Losses – Classification of costs - Cost statement or cost sheet – Tender and quotation - Job and Batch Costing.

Module 3: Material Control and Material Costing **10 Hrs.**

Materials – Concepts and objectives of material control – Organization for material control – Purchasing and receiving procedure – Some issues in materials procurement – stores organization – Inventory system – Inventory shortages (losses) and overages – Inventory control. Calculations of Stock levels and EOQ with or without discount.

Costing material received – Costing material issues (FIFO, LIFO, simple and weighted average method only) – Pricing of materials returned to vendor – Pricing of materials returned to storeroom – Selection of a material pricing method.

Module – 4: Labour Costs - Accounting and Control **10 Hrs.**

Introduction – Direct labour and indirect labour – Organization for labour control – Wage systems – Incentives wage plans – Work study – Job evaluation and merit rating – Time and motion study –

Labour turnover – Treatment of labour cost related items – Methods of remunerating labour – Time and piece rate system – Halsey and Rowan premium systems – Taylor and Merrick's differential piece rate system.

Module 5: Overhead Distribution **15 Hrs.**

Concept – Classification of overheads – Factory overhead - Fixed – Semi variable and variable – Factory overheads - Accounting and distribution – Collection and codification of factory overheads – Allocation and apportionment of factory overheads – Apportionment of service departments overheads to producing departments (repeated and simultaneous equation method) – Absorption of factory overhead (Machine hour rate) – Selecting an absorption rate.

Module 6: Reconciliation of Cost and Financial Accounts **8 Hrs.**

Need for reconciliation – Reasons for differences in profits – Problem on preparation of reconciliation statement and memorandum reconciliation accounts.

Skill Development

(These activities are only indicative, the Faculty member can innovate)

1. *Visit 3 factories in your locality and analyse the various methods of costing adopted by them.*
2. *Identify the materials consumed in any two organizations of your choice and collect different formats – materials requisition, purchase requisition, bin card, stores ledger.*
3. *Prepare wage sheet / pay roll with imaginary figures.*
4. *Identify variable, fixed and semi-variable costs of two companies and prepare the cost sheet.*

COURSE OUTCOMES

After completion of the course the students will be able to:

1. Explain the Concepts, Methods and Techniques of Cost accounting.

2. Prepare a Cost statement/Cost sheet in accordance with cost behavior (changes in output or activity or volume).

3. Prepare store ledger using FIFO, LIFO, Simple and weighted average method as tool of material control.

4. Compute cost of labour using Time and Piece rate system – Halsey and Rowan premium system – Taylor and Merricks differential piece rate system as tool of Labour control.

5. Compute statement showing allocation and apportionment of overheads of service department to Producing Departments by using Repeated and simultaneous equation Methods.

6. Compute statement showing the reconciliation of cost and financial accounts.

Books for Reference

- *C. Drury, Management and Cost Accounting*
- *A. Amaladas and M. AmalaShanthi, Corporate Financial Knowledge Integration, Himalaya publications*
- *Nigam, Theory and Techniques of Cost Accounting*
- *S. P. Jain & K L Narang, Cost and Management Accounting*
- *Dr. S. N. Maheshwari, Cost Accounting*
- *JawaharLal, Cost Accounting*
- *M. N. Arora, Cost Accounting, HPH*

SEMESTER – V

C5 21 DC 503 - DATA VISUALIZATION

COURSE OBJECTIVES

This course equips the students with the skills to examine the implications and applicability of Data Visualization tools in the domain of Analytics.

Unit 1: Introduction to Data Visualization & Infographics **12 Hrs.**

Importance of Data Visualization, Grammar of Graphics, Wilkinson's Grammar, Wickham's Grammar, Aesthetic Attributes, Geometric Objects, Faceting as a Subset of Plot, Mapping of Data, Layers, Scales, Coordinate System, Theme, Static Graphics versus Interactive Graphics.

Unit 2: Data Visualization in R with ggplot2 **12 Hrs.**

Key Components of a Plot- Data, Aesthetics and Geoms, Colour, Size, Shape and other Aesthetic Attributes, Plot Geoms- Smoother to a Plot, Boxplots and Jittered Points, Histograms, Bar Charts, Line and Path Plots, Modifying the Axes, Labels, Annotations, Collective Geoms, Surface Plots, Weighted Data, Dealing with Over-plotting.

Unit 3: Grammar of Visualization **12 Hrs.**

Mapping Aesthetics, Scaling, Grammar of Layers, Coordinate System, Faceting, Aesthetics in the Plot versus Aesthetics in Layers, setting versus Mapping, Generated Variables, Position Adjustments, Scale Title, Breaks and Labels, Layers and Legends, Legend Layout, Facet Wrap, Facet Grid, Theme Elements.

Unit 4: Programming with ggplot2 **12 Hrs.**

Overview of Functions, Object or Component of a Plot, Creating an Object, Multiple Components, adding two Layers in a Function, Plotting Components, Annotations, Additional Arguments in a Function, Plotting Functions, Indirectly Referring to Variables, The Plot Environment, Functional Programming.

Unit 5: Visualization with Tableau **12 Hrs.**

Tableau Software Ecosystem, Toolbar Icons, Data Window and Aggregation, Connect to Data, Measure Names, Number of Records & Measures, Joining Database, Cross-tabulation, Heat Maps, Tree maps, Bar Chart, Line Chart, Area Fill Charts, Pie Chart, Scatter Plot, Circle View, Bullet Graph, Packed Bubble, Histogram, Boxplot and Gantt Chart, Sorting Data, Enhancing Views with Filters, Sets, Groups & Hierarchies.

Skill Development Activities

(These activities are only indicative, the Faculty member can innovate)

1. Implement various graphical charts and plots through R and Tableau to understand the importance of Data Visualization in Exploratory Data Analysis.

2. Deploy different visualizations such as Tables, Charts, Maps based on different datasets using Tableau. (facet wrap, facet grid & plot with many graphical elements)

3. Create and implement specialized visual tools such as Dendrograms, Time Series Graphs, and Geographic Maps.

4. Understand and deploy several Graph Aesthetics, Statistical Transformations, Scales, Coordinate System, and Faceting using Tableau.

5. Creating Dashboards and Stories based on Real Time Data using Tableau Visualization Tool.

6. Create and visualize the plots by using ggplot2 for standard plot, time series visualization, parallel coordinates plots on Coronavirus data set.

7. Student will also solve the graphics challenge on R using different data set

COURSE OUTCOMES

After completion of the course the students will be able to:

1. Justify the applicability of Data Visualization on Exploratory Data Analysis.

2. Design Coding by using ggplot2 library in R – Configure Graph Aesthetics, Attributes, and Plot Geoms.

3. Apply the advanced graphical attributes and configurations such as Facet Wrap, Facet Grid, Layers and Legends based on R programming.

4. Use the codes for graphical object creation based on Functions and wrap-up codes.

5. Create graphical info graphics based on Dashboards and Stories using Tableau Tool.

Reference Books

- *Wickham Hadley (2016). ggplot2: Elegant Graphics for Data Analysis. Springer*
- *Few, Stephen. (2009). Now You See It: Simple Visualization Techniques for Quantitative Analysis. Analytic Press.*
- *Chun-houh Chen, Wolfgang Hardle, Antony Unwin (2008). Handbook of Data Visualization. Springer.*
- *Wilkinson L (2005). The Grammar of Graphics, Statistics and Computing. Springer.*
- *Murray (2013). Tableau: Your Data! Wiley.*

SEMESTER V

C5 21 DC 504 – OPERATION RESEARCH

COURSE OBJECTIVES

This course aims to equip the students with optimization techniques pertaining to complex decision making in business.

Module 1: Introduction to Operations Research **4 Hrs.**

Origin - Meaning &Definition – Methodology - Scope – O.R. Models - Features – Techniques - Limitations

Module 2: Introduction to Linear Programming **12 Hrs.**

Introduction – Basic Concepts in LPP – Formulation of LPP Model –Solving LPP using Graphical Method – Maximization and Minimization Model

Module 3: Simplex Method **14 Hrs.**

Introduction – Standard LPP form and its Basic Solutions – Slack– Surplus and Artificial variables – Simplex Algorithm – Artificial Starting Solution – Big-M Method – Minimization of LPP – Duality (Simple Problems Only)

Module 4: Transportation Problem **14 Hrs.**

Introduction-Linear Programming Formulation of the Transportation Problem – Methods of Finding Initial Solution – North West Corner Method – Least Cost Method - Vogel's Approximation Method – Test for Optimality – Modified Distribution Method – Economic Interpretation - (Special Cases on Prohibited Routes, Unbalanced and Maximization) – Trans-shipment Method (Concept Only).

Module 5: Assignment Problem **8 Hrs.**

Introduction – Mathematical Statement of the problem – Solution Methods of Assignment Problem – Enumeration Method – Simplex Method – Transportation Method – Solving Problems Using Hungarian Method Only.

Module 6: Network Analysis **8 Hrs.**

Introduction – Network Analysis – Guidelines for construction of network diagram – Deterministic Time Estimates – Developing a Project – Network – Project Duration & Critical Path - Forward Pass – Backward Pass – Float – Probabilistic Time Estimates – Difference between PERT & CPM.

Skill Development

(These activities are only indicative, the faculty member can innovate)

1. Visit a Supply Chain vendor and prepare a report on application of Transportation technique for any process.

2. Analyse using Job assignment techniques, job profiles and the labour cost in a factory.

3. Draw a network diagram for a project and identify the critical path.

4. Compute earliest expected time and latest allowable time for events in a project.

COURSE OUTCOMES

After completion of the course the students will be able to:

1. Describe the nature and scope of OR models and its applications for Business decision making.

2. Develop a Linear Programming model and maximization or minimization of objective function by using graphical method.

3. Solve a Linear Programming problem by using simplex or Big-M method for business decision making.

4. Solve a Transportation problem for business decision making using various methods.

5. Solve an assignment problem for business decision making by using Hungarian method.

6. Develop a project network diagram and analysis by Pert or CPM method for project management.

Books for Reference

- *Budnik, Frank S Dennis Mcleaavey& Richard Mojena: Principles of Operation Research, AIT BS, New Delhi.*
- *Gould F J: Introduction to Management Science, Englewood Cliffs N J Prentice Hall.*
- *Kalavathy S: Operation Research, Vikas Pub Co.*
- *Naray J K: Operation Research, Theory and applications, McMillan, New Delhi.*
- *Richard, I. Levin & Charles A. Kirkpatrick: Quantitative Approaches to Management, McGraw Hill, Kogakusha Ltd.*
- *Sharma J K: Operation Research, Theory and Applications, McMillan, New Delhi.*
- *Srivastava V. K. et.al: Quantitative Techniques for Managerial Decision Making, Wiley Eastern Ltd.*
- *Taha Hamdy: Operations Research, Prentice Hall of India.*

SEMESTER – V

C5 21 DE 501 - MULTIVARIATE DATA ANALYSIS

COURSE OBJECTIVES

This course equips the students with the skill set to examine the applicability of advanced analytical models like Logistic Regression technique, Time Series Smoothing Model, Stationarity checks based on Multivariate Data.

Unit 1: Overview of Multivariate Statistics **12 Hrs.**

Nature of Multivariate Analysis, Validity and Reliability, Types of Multivariate Techniques, PCA and Factor Analysis, Multiple Regression, Logistic Regression, Canonical Correlation, Conjoint Analysis, Cluster Analysis, Multi-Dimensional Scaling, Correspondence Analysis, Structural Equation Modeling, Multivariate Model Building.

Unit 2: Data Cleaning and Multivariate Techniques **12 Hrs.**

Graphical Examination of Data, Convert Un-Tidy Data into Tidy Data. Missing Data, Imputation of Missing Data by Central Tendency and kNN Method. Outliers, Winsorization of Outliers, Testing the Assumptions of Multivariate Analysis, Incorporating Nonmetric Data with Dummy Variables, Managerial Overview of the Results.

Unit 3: Logistic Regression **12 Hrs.**

Binary Classification versus Point Estimation, Odds versus Probability, Logit Function, Classification Matrix, Individual Group Classification Efficiency, Overall Classification Efficiency, Nagelkerke R Square, Receiver Operating Characteristic Curve, Sensitivity, Specificity, Area Under ROC Curve, Cut-Offs, True Positive Rate and False Positive Rate.

Unit 4: Introduction to Time Series **12 Hrs.**

Nature of Time Series, Components of Time Series, Secular Trend, Seasonal Variations, Cyclical Variations, Irregular Variations, Time Series Decomposition, Smoothing Techniques, Moving Average, Weighted Moving Average, Exponential Smoothing, Double Exponential Smoothing, Regression Trend Analysis, Autocorrelation and Auto regression.

Unit 5: Univariate Time Series Model **12 Hrs.**

Tests for Stationarity, Graphical Method, Unit Root Test, Augmented Dickey Fuller Test, Phillips–PerronTest, Schmidt–Phillips Test, KPSS Test, Identification of ARMA Models& Parameter Estimation, Testing Significance with Forecasting, Stationary Restriction for ARMA Models, ARIMA Models, Model Parameter Estimation, And Testing Parameter Significance.

Skill Development Activities

(These activities are only indicative, the Faculty member can innovate)

- ✓ *Conceptualize and apply multivariate skills and hands-on techniques using R in analyzing real time data.*
- ✓ *Understand and apply different Data Cleaning techniques based on multivariate statistics such as Multivariate Imputation and Data Encoding.*
- ✓ *Creating and designing 2-D and 3-D Multivariate Data Visualizations based on standard datasets (such as Covid19 data) using R programming.*
- ✓ *Understand and deploy Logistic Regression models for binary classifications and compute the efficiency of the deployed model using Receiver Operator Characteristics graph.*
- ✓ *Perform Time Series Analysis based on different techniques and methodologies such as Smoothing, Stationarity Testing and understand the processes namely Autoregressive & Moving Averages.*

COURSE OUTCOMES

After completion of the course, the students will be able to:

1. Justify the applicability of the Techniques of Multivariate Data Summary, Exploratory Data Analysis and Dimensionality Reduction.

2. Apply different Data Cleansing Methods such as Outlier Removal, Missing Values Treatment involving Multivariate Data.

3. Apply the Logistic Regression Models and present the findings using Classification Matrices, ROC Curves.

4. Compare and contrast the Forecasting based on different Smoothing Techniques by using Time series data.

5. Use the Univariate Time Series Models by performing several tests such as AD Fuller, KPSS, Parameter Significance.

Reference Books

- ❖ *Hair, J. F. et al. (2015). Multivariate Data Analysis, 6th edition. NJ: Prentice Hall.*
- ❖ *Aiken, L. S., & West, S. G. (1991). Multiple Regression: Testing and Interpreting Interactions. Newbury Park, CA: Sage.*
- ❖ *Hamilton, J. D. (1994). Time Series Analysis. Princeton University Press.*

- *Enders, W. (2010). Applied Econometric Time Series. Hoboken, NJ: John Wiley & Sons.*
- *Menard, S. (2002). Applied Logistic Regression Analysis. Thousand Oaks, CA: Sage.*
- *Tabachnick, B. and Fidell, L (2007). Using Multivariate Statistics, New York: Allyn & Bacon.*
- *Chris Chatfield & Haipeng Xing, 2019, The Analysis of Time Series: An Introduction with R, Chapman & Hall.*
- *Richard A. Johnson, 2012, Applied Multivariate Statistical Analysis, Prentice Hall*

SEMESTER- V

C5 21 VE 501 - FINANCIAL MODELING

COURSE OBJECTIVES

The students will be able to explain the meaning and purpose for which Financial Modeling is built and the use of basic and advanced features of excel in the context of financial modeling applications and apply Advanced Excel functions to present behaviour of sensitivities to the projected financial metrics of a firm.

Module 1: Financial Modeling – concepts and application **10 Hrs.**

Meaning of Financial modeling, reasons for using Excel for financial modeling, steps for building a financial model, who builds financial models, hallmarks of a good financial model, Objective of building financial modeling, types of financial models. Sustainable finance and its performance. Introduction to Understanding the Basic Features of Excel Introduction to Excel, Understanding Advanced Features of Excel. Sum function, Sumif function, Sumifs function, Average, averageif, Averageifs, Count function, Countblank, Counta, Countif, Countifs, Cell Referencing, Absolute Cell Referencing, Relative Cell Referencing, Mixed Cell referencing,Match function, Index function, PMT, PV, FV, If and AND functions. Correcting of common Excel Errors

Module 2: Advanced Excel Functions **10 Hrs.**

What if analysis, Sensitivity Analysis, One way Data Table, Two Way Data Table, Goal Seek function, Scenario manager and Solver functions, Monte Carlo simulation Simulation using Excel Generating Random Numbers that follow a particular distribution-Simulation Building Models in Finance using Simulation.

Module 3: Preparation of Forecasted of Financial Statements **10 Hrs.**

Preparing comparative financial statement, Common - sized financial statement, Trend Analysis, Ratio Analysis, Du Pont Analysis using Excel Spreadsheet Model. Venture capital financing eligibility – Case study, Forecasting of financial Statements - Case Study

Module 4: Financial Modeling for Project and Francize **10 Hrs.**

Financial Modeling for Project Appraisal, Identify the Revenue Drivers and Cost Drivers of Project Business model and Francize Business model, Use of Functions like Payback Period, Discounted Payback Period, Net Present Value (NPV) and Internal Rate of Return (IRR). Francize - Financial Modeling - Case study

Module 5: Financial modeling for company valuation **10 Hrs.**

Discounted cash Flow (DCF), DCF in the valuation of company, weighted average cost of capital (WACC), terminal value, Enterprise value and equity value, Discounted Cash Flow – Financial Modeling - Case study

Module 6: Advanced Financial Models **10 Hrs.**

Designing Advanced Financial Models, Stock turnover ratio, Debtor turnover ratio, creditors turnover ratio, working capital schedule, Property and Plant equipment schedule, Debt schedule, Forecasting of three financial statements (Income statement, balance sheet and cash flow statement) linking with schedules – Case Study Pivot and Macros

Skill development

1. A group of students visit business premises and conduct interviews to study the Business Model, revenue models

2. A group of students visit Restaurants/ KFC / Automobile dealers/ Hospitals/ Medical stores/ retail outlets and identify cash inflows and cash outflows, footfalls.

3. A group of students develop assumptions for the preparation forecasted financial statements with live historical financials from money control.com

4. Students prepare forecasted financial statements with live historical financials from money control.com

COURSE OUTCOMES:

After completion of the course the students will be able to

1. Explain the meaning and purpose for which Financial Modeling is built and the use of basic and advanced features of excel in the context of financial modeling applications

2. Apply Advanced Excel functions to present behaviour of sensitivities to the projected financial metrics of a firm

3. Develop a Financial Modeling for forecasting of Financial Statements with Analysis and interpretation of Financial statements by using excel

4. Construct a Financial Modeling for Project and francize after identifying the Revenue Drivers and Cost Drivers of those Business models

5. Develop a Financial Modeling for equity valuation by using discounted cash Flow (DCF) Model.

6. Apply advanced Financial Modeling technique forecasting of three financial Statements with linking necessary schedules.

Books for Reference:

- ✓ *Michael Rees (2018), 'Principles of Financial modeling' Wiley*
- ✓ *Michael Samonas (2015) 'Financial forecasting, Analysis and Modelling' Wiley*
- ✓ *Simon Benninga (2014) 'Financial Modeling' MIT press*
- ✓ *Jordan Goldneior. Advanced Excel Essentials.*
- ✓ *John walkenbach. Excel 2013 Bible.*
- ✓ *Gupta Vijay (2002), Statistical Analysis with Excel, VJ Books Inc., Canada*
- ✓ *Winston L. Wayne (2014), 'Microsoft Excel 2013: Data Analysis and Business Modeling', Microsoft Press, U.S.A.*
- ✓ *Chandan Sengupta ,Financial Analysis and Modeling Using Excel and VBA , Wiley*
- ✓ *Ruzbeh J. Bodhanwala ,Taxmann's Financial Management using Excel Spreadsheet,*

SEMESTER - VI

C5 21 DC 601 - INCOME TAX – II

COURSE OBJECTIVES

This course enables the students to compute taxable income and tax liability of an Individual assessee who is involved in Business and Profession.

Module 1: Profits & Gains of Business or Profession **16 Hrs.**

Meaning of business–Profession–Profits of business or profession– Features of assessment of profits and gains–Rules for adjustment of profit and loss account–Depreciation u/s32.Problemsonbusiness relating to sole trader only and problems on profession relating to Doctor, Advocate and Chartered Accountant.

Module 2 : Capital Gains **12 Hrs.**

Meaning and kinds of capital asset – Transfer – Transactions not regarded as transfer – Full value of consideration –Cost of acquisition Cost of improvement–Capital gains exempt from tax exemptions from capital gains u/s 54. Problems on computation of short term and long term capital gains.

Module 3: Income from Other Sources **12 Hrs.**

General income–Specific incomes–Treatment of specific incomes– Deduction of tax at source with respect to interests, winnings, prizes etc. Problems on computation of taxable income from other sources and deduction u/s 57 and amounts expressly disallowed u/s58.

Module 4: Deductions from Gross Total Income **8 Hrs.**

(Provisions relating to individuals only) u/s 80- Deduction in respect of certain payments and deduction in respect of certain incomes.

Module 5: Carry forward and set off of Losses **2 Hrs.**

Carry forward and set off of Losses

Module 6: Tax Liability of Individuals **10 Hrs.**

Computation of total taxable income and tax liability of an individual.

Skill Development

(These activities are only indicative, the Faculty members can innovate)

1. *Create a chart of capital gains index numbers and prepare a table of rates of TDS.*
2. *Conduct a survey among tax players to understand and analyze the implications of IT Provisions.*
3. *Develop the process of Income tax filing [considering extraordinary cases , ex : extension of dates during pandemic]*
4. *Prepare a list of enclosures required for IT filing*
5. *Apply Income tax provisions and create tax planning for an individual.*

COURSE OUTCOMES

After completion of the course the students will be able to:

1. *Illustrate the concepts and features of assessment of profits and gains of individual proprietorship, Doctor, Advocate and Chartered Accountant as individual assessee.*
2. *Compute short term and long term capital gains of an Individual assessee who is involved in Business and Profession.*
3. *Compute taxable income from other sources of an Individual assessee after taking into account deduction u/s57andamounts disallowed u/s58.*
4. *Compute gross total income of an Individual assessee after taking into account deduction u/s80.*
5. *Illustrate the mechanism of carry forward and set off of an Individual assessee who is involved in Business and Profession.*
6. *Compute total taxable income and tax liability of an Individual assessee who is involved in Business and Profession.*

Books for Reference

- *Lal, B. B. (2010). Income tax. Pearson Education India.*

- *Bhagwati, P. (1998). Direct Taxes: Law and Practice: Income Tax Wealth Tax Gift Tax with Tax Planning Management.*
- *Dinkar, P. (1992). Law and Practice of Income Tax.*
- *Ahuja, G., & Gupta, R. (2019). Direct Taxes Law & Practice. Wolters kluwer india Pvt Ltd.*
- *Mehrotra, D., & Goyal, D. (2015). Direct Taxes–Law and Practice. Sahitya Bhavan Publication.*
- *Singhania, V. K., & Singhania, J. (1999). Direct Taxes Ready Reckoner. Taxmann Publication.*
- *Gaur, V. P., & Narang, D. B. (1990). Income Tax: Law and Practice.*

SEMESTER – VI

C5 21 DC 602 - MANAGEMENT ACCOUNTING

COURSE OBJECTIVES

The course aims to impart the students the knowledge about the use of financial, cost and other data/information for the purpose of managerial planning, control and decision making.

Module-1: Introduction **2 Hrs.**

Meaning – Nature and Scope of Management Accounting – Relationship between Financial Accounting – Cost Accounting and Management Accounting – Role of Management Accountant in the Present Scenario. Environmental Management Accounting , Triple Bottom Line and Importance of TBL , CSR and Management Decisions.

Module–2: Financial statement analysis **8 Hrs.**

Meaning and concept of Financial Analysis – Types of Financial Analysis – Methods of Financial Analysis – Problems on Comparative Statements – Common Size statements – Trend Analysis.

Module – 3: Ratio analysis **10 Hrs.**

Meaning – Utility and limitations – Classification of Ratios – Calculation and interpretation of Solvency – Turnover – Profitability & Liquidity ratios.

Module – 4: Funds flow analysis **12 Hrs.**

Meaning – Concept of Fund and Funds Flow Statement – Uses and significance of Fund Flow Statement–Procedure for preparing FFS –Schedule of changes in working capital–Statement of sources and application of funds.

Module-5: Cash flow analysis **10 Hrs.**

Meaning and concept–Comparison between Funds Flow and Cash Flow Statements – Uses and significance of CFS – Preparation of Cash Flow Statement as per IFRS

Module –6: Contemporary concepts **18 Hrs.**

Activity Based Costing; Life Cycle Costing; Target Costing; Kaizen Costing; Balanced Score Card (including problems).

Skill Development

(These activities are only indicative, the Faculty member can innovate)

i. From the Financial Statements of any listed company of your choice, extract the Cash Flow Statement for the period before Covid 19 and during Covid 19 and analyse the impact of Covid 19 on the Cash flows position of the organization activity-wise.

ii. Prepare Comparative and Common Size Financial Statements of a company of your choice and give your interpretations.

iii. Collect the past five years Financial Statements of a company of your choice and prepare trend percentages and give your interpretations.

iv. Calculate Liquidity Ratios, Solvency Ratios, Turnover Ratios and Profitability Ratios of any two listed companies of your choice and give interpretations.

v. From the Financial Statements of any listed company of your choice, prepare a statement of changes in working capital, Funds from Operation and Funds Flow Statement.

COURSE OUTCOMES

After completion of the course the students will be able to:

1. *Illustrate the role of a Management Accountant in the present scenario.*
2. *Evaluate the financial statement analysis for strategic decision making of firm.*
3. *Examine the solvency, turnover/performance and Liquidity of a business by using live data.*
4. *Evaluate the magnitude and pattern of sources and Application of fund under different head of account.*
5. *Evaluate the magnitude and pattern of inflow and outflow of cash within the IFRS framework.*
6. *Justify the usage of contemporary concepts in Costing as particular type of situation/case warrants in the present state of affairs.*

Books for Reference

- *Dr . S. N. Maheswari: Management Accounting.*
- *Augustin Amaladas and Mary Amala Shanthi: Corporate Financial Knowledge Integration, Himalaya publications*
- *M. Pandey: Management Accounting.*
- *Jain & Narang: Cost and Management Accounting.*
- *M. A. Sahab: Management Accounting.*
- *Prabhakara Rao: Management Accounting.*
- *R. S. N. Pillai & Bagavathi: Management Accounting.*
- *Sexana: Management Accounting.*
- *Sharma & Shashi Gupta: Management Accounting.*

SEMESTER VI

C5 21 DC 603 - DATA MINING WITH R

COURSE OBJECTIVES

This course will equip students to code with different Machine Learning Techniques and Algorithms, apply Artificial Neural network, Support Vectors and design Market Based Models.

Unit 1: Classification and Regression Tree **12 Hrs.**

Classification & Regression, working of a Decision Tree, Attribute Selection Measures, Information Gain, Gain Ratio, Gini Index, Building Decision Trees, CART, C5.0, and CHAID Trees, Prediction by Decision Tree, Advantages and Disadvantages of Decision Trees, Model Overfitting, Building Decision Trees in R.

Unit 2: Clustering **12 Hrs.**

Cluster Analysis versus Factor Analysis, Overview of Basic Clustering Methods, Agglomerative Hierarchical Clustering, Within-Group Linkage, Nearest Neighbour or Single Linkage, Furthest Neighbour or Complete Linkage, Centroid Clustering, Ward's Method, K-Means Algorithm, Dendrogram, Profiling of Cluster, Cluster Evaluation.

Unit 3: Artificial Neural Networks **12 Hrs.**

Structure of a Neural Network, Input Layer, Hidden Layer, Output Layer, Nodes, Synaptic Weights, Analogy with Biological Neural Network, Scaling of Data, Activation Functions, Hyperbolic Tangent, Sigmoid, Identity, Softmax, Optimization Algorithms, Scaled Conjugate Gradient, Gradient Descent, Model Accuracy.

Unit 4: Support Vector Machine **12 Hrs.**

Decision Boundaries for Support Vector Machine, Maximum Margin Hyperplanes, Structural Risk Minimization, Linear SVM-Separable Case, Linear SVM-Non-Separable Case, Kernel Function, Kernel Trick, Kernel Hilbert Space, Model Evaluation.

Unit 5: Market Basket Analysis **12 Hrs.**

Market Basket Analysis and Association Analysis, Market Basket Data, Stores, Customers, Orders, Items, Order Characteristics, Product Popularity, Tracking Marketing Interventions, Association Rules, Support, Confidence, Lift, Chi-Square Value, Sequential Pattern Analysis.

Skill Development Activities

(These activities are only indicative, the Faculty member can innovate)

1. *Understand and employ a wide variety of statistical and machine learning algorithm.*
2. *Identify the characteristics of datasets, problem statement and develop machine learning programs with reference to known computing technique.*
3. *Employ and implement a CART based and CHAID based decision trees based on type of data set.*
4. *Effectively implement an unsupervised learning on the dataset.*
5. *Implement Machine learning techniques and the programming framework to obtain acceptable for the real-world project.*

COURSE OUTCOMES

After completion of the course the students will be able to:

1. *Analyze the Decision Trees Algorithms based on Classification and Regression Techniques.*
2. *Justify the use of Dendrograms to evaluate Clustering Algorithms, Nearest Neighbor Models, Linkage, Cluster Profiling.*
3. *Examine the fundamental theory and concepts of Neural Networks and applicability and implications of use of NN Paradigms and its Activation Functions.*
4. *Examine the applicability and use of Kernel Trick in SVMs in the context of Separable/Non-Separable Cases*
5. *Relate the Market Basket Algorithm with the Use of Association Rules, Apriori Algorithm to find frequent item sets.*

Reference Books

- *Han, Jiawei and Kamber, Micheline. (2012). Data Mining: Concepts and Techniques. Morgan Kaufman Publishers.*
- *Tang, P.N., Steinback, M. and Kumar, V. (2014). Introduction to Data Mining. Pearson.*

- *Myatt, Glenn and Johnson, Wayne. (2009). Making Sense of Data II. Wiley.*
- *Anand Rajaraman. (2011). Mining of Massive Datasets. Cambridge University Press.*
- *Mitchell (2013). Machine Learning. McGraw Hill.*
- *Saikat Dutt, Subramanian Chandramouli, 2018, Machine Learning, Pearson Education*

SEMESTER VI

C5 24 DC 604: GOODS AND SERVICES TAX

COURSE OBJECTIVE

The course is designed to expose the students to the various provisions of Goods and Services Act and enable students to compute goods and service tax liability as per the provisions.

Module 1: Introduction **5 Hrs.**

Taxes, Direct and indirect taxes, the basic features of Indirect taxes and the principal Indirect taxes in India. The concept of GST- The need for GST, Taxes Subsumed not subsumed under GST. The framework under GST (Dual Model), Levy of GST, benefits from implementation of GST. GST Council- composition Power and Functions.

Module 2: Supply Under GST **20 Hrs.**

Supply, Types, Time of supply, place of supply and value of supply, Levy and collection of CGST/SGST/IGST, Tax liability on Mixed and Composite supply.

Module 3: Overview of GST Registration, Exemption and Rates **10 Hrs.**

Important definitions, Exemptions from Tax, Registration under GST, Special provisions for Casual taxable persons and Non-resident taxable persons, GST Rates, Composition scheme, alternative composition scheme, Reverse Charge Mechanism (RCM).

Module 4: Valuation of Supply, Input Tax Credit & Computation of Tax **15 Hrs.**

Computation of transaction Value (simple problems), input tax credit- Definition of: Input Goods, Input Services, Capital good s, Input on Capital Goods, Concept of Input tax credit, Eligibility and conditions for taking ITC, (Numerical Illustrations), Cross Utilization of ITC, computation of tax

Module 5: E- Commerce & Documents of GST **5 Hrs.**

Provisions relating to E-Commerce, Tax Invoice, E-Way bill(provisions), Debit note , credit note, Concept of Electronic Credit Ledger, Electronic Cash Ledger- Brief introduction

Module 6: Payment of Taxes and Filing of Returns **5 Hrs.**

Returns for Outward supply (GSTR-1), Returns for Inward Supply (GSTR-2), Final Monthly Returns (GSTR-3), Annual Returns (GSTR-9) Mechanism of GST Network w.r.t Returns, matching of invoices. GST Network: Structure, and Functions

COURSE OUTCOMES:

After completion of the course, the students will be able to:

1. Analyze the composition, power, and functions of the GST Council.
2. Calculate tax liability and determine supply aspects under various scenarios
3. Evaluate the applicability of ITC in special circumstances .
4. Compare and contrast the significance of different types of returns and their implications
5. Illustrate the structure, vision, mission, and functions of the GST Network

Skill Development:

(These activities are only indicative, the Faculty member can innovate)

1. Narrate the procedure for calculation of CGST, SGCT and IGST.
2. Show the flow chart of GST Suvidha Provider (GST).
3. Prepare chart showing rates of GST.
4. Prepare challans for payment of duty.
5. Prepare Tax invoice under the GST Act.
6. Prepare structure of GSTN and its working mechanism.
7. Prepare list of exempted goods/ services under GST.
8. Prepare organisation chart of GST Council.
9. Prepare the chart showing scheme of GST.
10. Compute taxable value and tax liability with imaginary figures under CGST, SGST and IGST.197
11. Procedure for registration
12. Furnishing of monthly returns.

Books for Reference

- *Deloitte: GST Era Beckons, Wolters Kluwer.*
- *Madhukar N Hiregange: Goods and Services Tax, Wolters Kluwer.*
- *All About GST: V.S Datey - Taxman's.*
- *Guide to GST: CA. Rajat Mohan,*
- *Goods & Services Tax – Indian Journey: N.K. Gupta & Sunnania Batia, Barat's Publication*
- *Goods & Services Tax: Dr. Sanjiv Agrawal & CA. Sanjeev Malhotra.*

SEMESTER VI

C5 21 DE 601 - TEXT MINING

COURSE OBJECTIVE

This course will equip students to apply Text analytics, Topic Modelling and to perform various functions.

Unit 1: Introduction to Text Mining **12 Hrs.**

Basics of Text Mining, Natural Language Content Analysis, Core Text Mining Operations, Associations, Using Background Knowledge for Text Mining, Domain Ontologies, Domain Lexicons. Text Mining Pre-processing Techniques, Task Oriented Approaches, NLP Tasks, Tokenization, Part-of-Speech Tagging, Syntactical Parsing and Shallow Parsing.

Unit 2: Extracting Features, Relations from Text **12 Hrs.**

Finding Implicit Features, Finding Opinion Phrases and their Polarity, Context-Specific Word Semantic Orientation, Analysis of Word and Document Frequency, tf-idf, Zipf's Law, bind tf_idf Function, Subsequence Kernels for Relation Extraction, Capturing Relation Patterns with a String Kernel.

Unit 3: Text Categorization and Clustering **12 Hrs.**

Applications of Text Categorization, Document Representation, Knowledge Engineering Approach to Text Categorization, Machine Learning Approach to Text Categorization, Evaluation of Text Classifiers. Clustering Tasks in Text Analysis, Clustering Algorithms and Clustering of Textual Data.

Unit 4: Relationships between Words **12 Hrs**

Tokenizing by N-gram, Counting and Filtering N-gram, Analysing Bigrams to provide Context in Sentiment Analysis, visualizing a Network of Bigrams using ggraph, Counting and Correlating Pairs of Words with the widyr Package, Counting and Correlating among Sections, Examining Pairwise Correlation.

Unit 5: Topic Modelling and Probabilistic Models for Information Extraction 12 Hrs.

Latent Dirichlet Allocation, Word Topic Probabilities, Per-Document Classification, By-words Assignments, Alternative LDA Implementations. Hidden Markov models, Stochastic Context Free Grammar, Conditional Random fields, Parallel Learning Algorithms.

Skill Development Activities

(These activities are only indicative, the Faculty member can innovate)

1. Understand, implement and employ Natural Language Processing and various steps under it such as: Stemming, Lemmatization, POS Tagging, Chunking.

2. Analyze Word and Document Frequency for a Textual Data by understanding tf-idf, Zipf's Law.

3. Perform N-Gram Tokenization, Topic Modelling, Information Extraction based on Positive, Negative and Neutral Textual Data.

4. Employ the use of different Classification and Clustering Algorithms on Textual Data.

5. *Deploy a Twitter Sentiment Analyzer using Text Analytics with R.*

COURSE OUTCOMES

After completion of the course, the students will be able to:

1. *Evaluate the applicability and suitability of the concepts pertaining to Natural Language Processing such as Text Preprocessing, Parts of Speech Tagging, Tokenization using R in the context of Text Mining.*
2. *Compare and contrast the applicability of Text mining models which are able to Extract Features and Relations from Textual Unstructured Data.*
3. *Conduct the Text Categorizing and Clustering by using different algorithms and models.*
4. *Use the Filter, Tokenize, Count and Relate Words based on Bi-grams, N-Grams and statements so as to build Sentiment Analyzers.*
5. *Conduct Topic Modelling and Information Extraction using Latent Dirichlet Allocation, Word Topic Probabilities and Document Classifiers.*

Reference Books

- *Julia Silge and David Robinson (2018): Text Mining with R, A Tidy Approach. O'Reilly*
- *Matthew L. Jockers (2014). Text Analysis with R for students of literature. Springer.*
- *James Pustejovsky, Amber Stubbs (2012). Natural Language Annotation for Machine Learning. O'Reilly.*
- *James Sanger, Ronen Feldman (2002). The Text Mining Handbook: Advanced Approaches in Analyzing Unstructured Data. Cambridge.*
- *Steve R. Poteet (2007). Natural Language Processing with Text Mining. Springer.*

SEMESTER VI

C5 21 VE 601 – DATA VISUALIZATION THROUGH POWER BI

COURSE OBJECTIVE

This course will enable students to exercise their creativity in the domain of Data Visualization with Power BI. This module forms an introduction as well an in-depth study in the discipline of Data Visualization through Power BI software.

Module 1: Introduction to Power BI **12 Hrs.**

Power BI Deployment Modes, Project Discovery and Ingestion, Power BI Project Roles, Admin and Project Role Collaboration, Power BI Licenses, Data Warehouse Bus Matrix, Dataset Design Process, Data Profiling, Dataset Planning, Data Transformations, Import Mode and Direct Query Model

Module 2: Data Transformation & M Query Design **12 Hrs.**

Query Design per Dataset Mode, Data Sources, Authentication, Privacy Levels, Power BI Desktop Options, M Queries, Data Source Parameters, Staging Queries, Fact and Dimension Queries, M Query Summary, Data Types, Bridge Table Queries, Parameter and Security Tables, M Editing Tools.

Module 3: Direct Query Data Models **12 Hrs.**

Relationships View, Data View, Report View, Fact Tables, Dimension Tables, Relationships, Single Direction Relationships, Bidirectional Relationships, Cross Filter Function, Model Metadata, Optimizing Performance, Columnar Compression, Memory Analysis, Column Store and HTAP.

Module 4: Creating and Formatting Reports **12 Hrs.**

Report Planning, Live Connections to Power BI Datasets, Choosing the Visual, Visual Interactions, Slicers, Report Filter Scopes, Report Filter Conditions, Visual-Level Filtering, Visualization Formatting, Line and Column Charts, Tooltips, Scatter Charts, Column and Line Chart Conditional Formatting, Table and Matrix, Map Visuals.

Module 5: Custom Visuals and Dashboards **12 Hrs.**

Drill through Report Pages, Bookmarks, Analytics Pane, Quick Insights, Custom Visuals, Dashboard Design, Multi-Dashboard Architectures, Dashboard Tiles, Live Report Pages, Application Workspaces, Dashboard Data Classifications, Metadata Management.

COURSE OUTCOME

Upon successful completion of this module, students should be able to:

- *Understand the art of story-telling and different visualization techniques.*
- *Articulate and implement Data Transformation and M-Query Design under Power BI.*
- *Implement and employ the use of different Data Models and Relationships under Power BI.*
- *Prepare, Deploy and Publish Stories, Dashboards based on Analytical Cases.*
- *Understand and use Power BI software for creating visual charts and plots for easy Data Analysis and Interpretation.*

Books of References

1. Joe Webinar (2022). Microsoft Power BI for Beginners 2022: A to Z Mastery Guide on Microsoft Business Intelligence Tool for Data Modeling, Analysis and Visualization. Amazon.

2. Errin O'Connor (2020). Microsoft Power BI Dashboards Step by Step. Microsoft.

3. Greg Low. (2021). Implementing Power Bi in the Enterprise. SQL Down Under Pty Ltd.

4. Chandraish Sinha. (2021). Mastering Power BI: Build Business Intelligence Applications Powered with DAX Calculations, Insightful Visualizations, and Loads of Data Sources. BPB.

5. Greg Deckler. (2021). Microsoft Power BI Cookbook: Gain Expertise in Power BI with over 90 Hands-on Recipes, Tips and Use Cases. Packt.