St. Joseph's College of Commerce
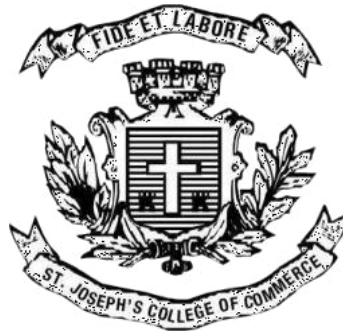
(Autonomous)
163, Brigade Road, Bengaluru – 560 025

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

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

B.Sc. Economics

Semester V

Syllabus as per National Education Policy Curriculum Framework

Academic year 2024-25

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 multidisciplinary fields of Commerce, Management, Economics, English and Psychology 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 65th 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, Business Administration, Economics and English. Under Commerce Studies it offers
B. Com, B. Com (Professional- International Accounting and Finance), B.Com (BPS- 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. The College offers a B.Sc Economics Programme and a B.A English and Psychology Programme.

THE DEPARTMENT OF ECONOMICS

The Department of Economics offers B.Sc Economics. This Department has started to incorporate the multidisciplinary spirit of the new NEP 2020. The B.Sc Economics programme has been designed to provide a cutting edge expertise in mainstream economics with minor (psychology). The programme aims to develop analytical, creative and critical thinking skills for problem solving and decision making. It aims at better understanding of social, economic, psychological and political issues and also explores the full spectrum of finance. The transferable skills attained

through the B.Sc (Economics) are highly sought after by employers and increase the employability quotient of students in various dynamic fields. A student could be an economist, a government advisor, financial consultant, econometrician, banker and also look forward to different government positions after successful completion of the programme. Keeping in view the new NEP, the programme is multidisciplinary in nature and integrates different fields like Psychology, Finance, Mathematics, Statistics, Data Analytics, Operations Research, History, Politics, Environmental Studies, Model Building with an inbuilt local as well as global perspective.

New elements such as internship, case studies, seminars and research projects enhance deeper understanding of the practical applications of the programme. So, join in to embark on a whole new adventure with us. The bachelor's degree programme in Economics is a full-time undergraduate programme that aims at providing a programme structure which would retain the 'traditionals' in the programme and equip the students with business acumen necessary to succeed in the professional world. On completion of B.Sc. (Economics) at SJCC, students will acquire comprehensive knowledge of how the economic principles are applied in the society, family, government and private sector, business, and science.

SALIENT FEATURES OF B.Sc. ECONOMICS PROGRAMME WITH MULTIPLE ENTRY AND EXIT OPTIONS:

1. The regulations governing B.Sc. Economics Programme with Multiple Entry and Exit Options shall be applicable with effect from the Academic year 2022-2023.
2. The B.Sc. (Economics) Programme shall be structured in a semester mode with multiple exit options.

Certificate	On the completion of **First** year *(two semesters)*
Diploma	On the completion of **Second year** *(four semesters)*
Basic bachelor's degree	On the completion of **Third** year *(six semesters)*

3. The students who exit with Certification, Diploma and Basic bachelor's degree shall be eligible to re-enter the programme at the exit level to complete the programme or to complete the next level.
4. The B.Sc (Economics) 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, commerce, management, social, physical and life sciences, mathematics, sports etc.
5. The B.Sc (Economics) 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.

6. 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.

7. 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 make the programme truly multi-disciplinary.

8. The students have one *specialization/ elective* in the fifth and sixth semester.

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 programme is *three- years* (six semesters) with multiple entry and exit options, within this period. The students can exit after the completion of *one* academic year (Two semesters) with the *Certificate* in a discipline; *Diploma* after the study of *two* academic years (Four Semesters) and *Basic bachelor's degree* after the completion of *three* academic years (Six Semesters).

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 MULTIDISCIPLINARY UNDERGRADUATE BSC.ECONOMICS PROGRAMME

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

Category of courses	Objective/ 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 imbibe in that particular discipline. They provide fundamental knowledge and expertise to produce competent, 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 programmes in Government Schools or Colleges, community service in slums and villages, awareness programmes 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.

VII. TEACHING AND EVALUATION

M.A/M.Sc graduates with Economics and Psychology 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 for 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 marks 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, 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 years 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, respectively. For award of,

- Certificate

- Diploma
- Basic bachelor's degree

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.

Program Objectives

1. To provide a sound foundation in factual knowledge in various concepts, theories and models of mainstream economics, and its diverse subfields of macro, micro, developmental economics, public finance, monetary economics, etc. to rigor to the subject and learn to apply them in analysing economic phenomena.

2. To develop strong quantitative skills in students by introducing them to mathematical economics, statistics and econometrics in order to analyse complex economic issues.

3. To enhance 'learning to learn' skills in students through guided self- learning in order to develop their critical and creative thinking skills and

4. be able to generate new ideas and processes.

5. To enable students to integrate technology into the study of complex economic phenomenon for analysis of available data, learning to make inferences and finally, learning to produce findings in

visual form and writing.

6. To be able to critique the dynamic complex interaction of economies with society by studying firms and governments through behavioural experimental methods which will lead them to explore policy formulation.

Programme Outcomes

1. Systematic understanding of economic terminology and concepts. Ability to recall the fundamentals of both micro and macroeconomics theories.

2. Explain the relationship between various economic factors and variables.

3. Interpret different economic data through tabulation and graphical presentation of data.

4. Excellent understanding of how to tackle economic problems while being aware of the application and limitations of different approaches, showing strong judgement in the usage of these approaches in varied settings.

5. Analyse economic data with the aid of mathematical and quantitative techniques.

6. Create economic simulation model which represent real life scenario and creatively find solutions to economic issues.

7. Determine the boons and bains of economic arguments, economic policies, economic theories and economic reasoning.

8. Assessing the impact of economic developments on society and make recommendations for evolving stronger and better economic policies.

9. Developing new economic models relevant to a dynamic environment by incorporating latest technologies and software.

10. Solve the complex Macro economic problems with an understanding of the societal, legal and cultural impacts of the solution.(Example: Economics Goods & Services Tax (GST)-Fiscal Monetary Policy, Union Budget, Crony Capitalism, Bankruptcy Code, Re-capitalism and so on)

11. Carrying out innovative and original research.

B.Sc Economics Programme Matrix

Category /Semesters	I	II	III	IV	V	VI	Not applicable		Total Credits
PART A: LANGUAGES & COMPULSORY COURSES									
Language 1 4 Hrs/3 Cr	Language 1 (3 Cr)	Language 1 (3 Cr)	Language 1 (3 Cr)	Language 1 (3 Cr)	-	-	-	-	24
Language 2 4 Hrs/3 Cr	Language 2 (3 Cr)	Language 2 (3 Cr)	Language 2 (3 Cr)	Language 2 (3 Cr)	-	-	-	-	
Compulsory Courses (2Hrs/2Cr)		Environmental Studies (3Cr)		Indian Constitution (3Cr)					6
PART B: CORE & ELECTIVE COURSES, SEC-SB, VOCATIONAL COURSES, RESEARCH & INTERNSHIP									
Discipline Specific Core Courses: Economics (4Hrs/ 4Cr or 3 Cr)	Microeconomics (3 Cr)	Macroeconomics (3 Cr)	Factor Pricing & Welfare Economics (3 Cr)	Monetary Economics (3 Cr)	Economics of growth and Development (4 Cr)				72
	Mathematics for Economics (3 Cr)	Statistics for Economics (3 Cr)	Basic Econometrics (3 Cr)	Time Series Economics (3 Cr)	Data Analytics using R Programming (4 Cr)				
					Operation Research (4 cr)				
					Research Methodology (4cr)				
Psychology (Minor)	PSY – 1 (4+2)	PSY– 2 (4+2)	PSY – 3 (4+2)	PSY – 4 (4+2)					24
Open Elective Courses (3Hrs/3Cr)	Choice of Course (3 Cr)	Choice of Course (3 Cr)	Choice of Course (3 Cr)		-	-	-	-	9
Discipline Specific Elective (4 rs/3Cr)	-	-	-	-	International Economics (3 Cr)	Elective 2 (3 Cr)	Elective 3 (3 Cr)	Elective 4 (3 Cr)	12
Skill Enhancement Courses- Skill Based (1Hr./2 Cr)	Digital Fluency (2 Cr)		Artificial Intelligence (2 Cr)	Financial Education and Investment Awareness (2cr)	Internship (2 Cr)	Internship (2 Cr)	-	-	10
Vocational Enhancement Courses (3 Hrs/3Cr)	-	-	-	-	Stock Trading (3 Cr)	Choice of Course (3 Cr)	Choice of Course (3 Cr)	Choice of Course (3 Cr)	12
Research Methodolog							-		4

y (4hrs/4 Cr)									
Research Project/ Internship (6 Cr)/Addition al Electives (4Hrs/3Cr)	-	-	-	-	-		Research Proposal Formulati on (2 cr)	Researc h Project (10+2 cr)	10+2*

PART C: SKILL ENHANCEMENT COURSES- VALUE BASED

Foundation Courses (2Cr)	Psycholo gical Well- being (2Cr)	Outreach (1 cr)	Yoga (1 cr)-	Outreach (1 cr)			-	-	8
Extension and Extra- Curricular Activities	-	Extension & Extra- Curricular Activities (1Cr)	Extension & Extra- Curricular Activities (1Cr)	Extension & Extra- Curricular Activities (1Cr)				-	-
Total Crs.	25	26	25	25	24	24	22*	22	193 *

Course Matrix for B.Sc. Economics Programme

Semester V

SL. No.	Course Code	Title of the Course	Category of Course	Teaching Hour per Week (L+T+P)	ESE	CIA	Total Marks	Credits
1.	S1 22 DC 501	Economics of Growth and Development	DSC-1	4+0+0	60	40	100	4
2.	S1 22 DC 502	Research Methodology	DSC-2	4+0+0	60	40	100	4
3.	S1 22 DC 503	Operation Research	DCS-3	4+0+0	60	40	100	4
4.	S1 22 DC 504	Data Analytics Using R Programming	DSC-4	4+ 0+0	60	40	100	4
5.	S1 22 DE 501	International Economics	DSE-1	3+0+0	60	40	100	3
6.		Stock Trading	SEC-VB	3+ 0+ 0	60	40	100	3
7		Internship		2 +0 +0				2
TOTAL								24

S1 22 DC 501: ECONOMICS OF GROWTH AND DEVELOPMENT

COURSE LEARNING OUTCOMES:
On successful completion of the module students will be able to:
- Understand the concepts of Economic Development and Economic Growth, and their distinctions and evaluate different measurement methods for economic development including HDI, Green GDP, GHI, and Gender Empowerment Index.
- Evaluate and recognize economic inequality in the context of development and its implications along with unemployment.
- Understand various models of development, it's relevance for the current economy.
- Analyse the various growth models which will enable conceptual clarity, reinforcing theoretical groundwork, and fosters critical thinking abilities.

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Module–1: Economic Growth And Development: Overview   6 Hrs

Meaning of Economic Development and Economic Growth - Values in Economic Development, Measurement – HDI, Green GDP, GHI, Gender Empowerment Index –Characteristics of Development – Characteristic Features of Developing countries – Factors facilitating development – Market imperfections

Module 2: Development Models   10 Hrs

Classical theory of development – Karl Marx – Rosenstein Rodan theory – Leibenstein critical minimum theory - Rostow – Luiz model of unlimited supply of labor – Schumpeter's theory

Module 3: Growth Models   15 Hrs

Harrod Domar model – Solow model – Balanced and Unbalanced strategy (Ragnar and Hershman)

Module 4: Poverty And Inequality   10 hours

Economic inequality and development, Vicious circle of poverty - Kuznets curve - Lorenz curve – Sen's capacity building – Case studies of various countries' experiences on poverty – Social Dualism-Gini coefficient

Module 5: Resources For Development   10 Hrs

Population and Human Capital Formation – Schultz model of human capital formation – Rural - urban migration - Formal and informal sector – Migration and development – Todaro model – Dual economy – Economic and social dualism

Skill Development:
- Analyzing and develop their ability to conduct research and analyze various economic development indicators such as HDI, Green GDP, GHI, and Gender Empowerment Index.
- Enhance their critical thinking skills by analyzing and evaluating different development models proposed by classical theorists such as Karl Marx, Rostow, and Schumpeter.

- Improve their mathematical and statistical analysis skills by studying growth models such as the Harrod Domar model and the Solow model.
- Cultivate empathy and deepen their understanding of poverty and inequality by analyzing case studies of various countries' experiences.
- Hone their problem-solving skills and engage in policy analysis by studying the relationship between population dynamics, human capital formation, and economic development.

Reference Books:
1. Meier, G. Economics of Development.
2. Todaro, M. P., & Smith, S. C. Economic Development (11th ed.). Pearson.
3. Ray, D. Development Economics. Princeton University Press.
4. Srivastava, O. P. Economics of Development and Planning.
5. Perkins, D. H., Radelet, S., & Lindauer, D. L. Economics of Development.
6. Haider, N. S. N. Economics of Development: Towards Inclusive Growth.
7. Singh, L., Joseph, K. J., & Johnson, D. K. N. Technology, Innovations & Economic Development: Essays in Honour of Robert E. Evenson. Sage.
8. Narula, U. Development Shock: Dynamics of India and Current developments. Atlantic.
9. Jhingan, M. L. The Economics & Development of Planning (40th ed.). Vrinda Publication.
10. Mishra, S. K., & Puri, V. K. Economics of Development & Planning: Theory & Practice. Himalaya Publication.
11. Lal, S., Rao, N., & Satyanarayane, T. Rural Development in the Era of Globalization

Course Objective:
- To introduce the basic principles and procedure of research in social science
- To provide knowledge about qualitative and quantitative methods used in social science
- To develop the ability to formulate a clear and focused research question or problem.
- To critically evaluate different research designs and select the most appropriate for a specific research question.
- To master various data collection and analysis methods for quantitative and qualitative research.
- To effectively communicate research findings through written reports and presentations

Module 1: Introduction to Social Science Research   10 hrs
Meaning of Research, Objective and relevance of social science research - objectives and value in social science research scientific investigation, approaches to social science, theoretical empirical, applied and action research. Uni disciplinary and multidisciplinary methodologies

Module 2: Research Design   15 hrs
Meaning of Research Design, Guiding principles in the choice of research topic, formulation of research topic, formulation of research problem, role of review of literature, identification of research gap, need for the study, dependent and independent variable, formulating hypothesis, types of research design, exploratory, descriptive, diagnostic and experimental and hypothesis testing.

Module 3: Sampling   10 hrs
Concept of sampling population, sampling frame, sampling error, sample survey vs Census survey-characteristics of a good sample, probability and non- probability sampling techniques

Module 4: Data Collection and Data Preparation   15 hrs
 Sources   of data-primary   and secondary,   observation, structured   and unstructured interview process, schedules and questionnaires. Editing, coding, Classification and Tabulation of Data, Data cleaning and Data Adjusting.

Module 5: Essentials of Research Papers   10 hrs
Layout of a Research Paper- Structure of Abstract and Keywords- Referencing styles and bibliography -Impact Factor of Journals- Ethical issues related to publishing- Plagiarism -Use of tools / techniques for Research: methods to search required information effectively, Reference Management Software like Zotero/Mendeley, Software for paper formatting like MS Office, Software for detection of Plagiarism, SPSS- GenAI for Research

Skill Development

The students are expected to submit a research paper as part of the completion of the course.
1. Identify a research problem in your field of interest and formulate a clear research question.
2. Conduct a literature review on your chosen research topic.
3. Develop a research design for your research question, including data collection methods and sampling techniques.
4. Design a research instrument (questionnaire or interview guide) for your research.
5. Analyze a sample dataset using appropriate statistical methods (quantitative) or thematic analysis (qualitative).
6. Write a research report summarizing the research process, findings, and conclusions.
7. Prepare a presentation to communicate your research findings to a broader audience.

References

1. Kothari, C. R. Research Methodology: Methods and Techniques. New Age International Publishers.
2. Sinha, S. C., & Dhiman, A. K. Research Methodology. New Delhi Publishers.
3. Singh, Y. K. Fundamentals of Research Methodology. Sage Publications.
4. Kumar, R. Research Methodology: A Step-by-Step Guide for Beginners. APH Publishing.
5. Patnaik, U. C. A Text Book of Research Methodology. PHI Learning Private Limited.
6. Creswell, J. W. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. Sage Publications.
7. Cooper, D. R., & Schindler, P. S. Business Research Methods. McGraw-Hill Education.
8. Yin, R. Case Study Research: Design and Methods. Sage Publications.
9. Flick, U. An Introduction to Qualitative Research. Sage Publications.
10. Sekaran, U. Research Methods for Business. Wiley.

Course Objective:

This course delves into the world of Operations Research (OR)

- To equip the students with a powerful toolkit to tackling complex decision- making problems.
- To master the methodology of formulating and solving linear programming models
- To gain insights into transportation and assignment models which are critical for resource allocation.
- To be introduced to techniques like Simulation, PERT and CPM for multi-stage decision-making and analyzing complex systems.

Module 1: Introduction to Operations Research   6 hrs

Introduction, History of OR, Definition, Features, Methodology/ Approaches to OR, Types of Operation Research Models, Tools of Operation research, Application of OR Techniques, Limitations.

Module 2: Linear Programming   14 hrs

Definition, Terminology and requirements, General Form of LP model, Applications of LP models, Formulation and Graphical presentation of LP models LPP-Simplex Method-Maximization and Minimization models, Description of special cases under LPP

Module 3: Transportation And Assignment Models   14 hrs
Formulation of Transportation problem, Basic Feasible solution- Northwest Corner Rule (NWCR), Least Cost and Vogel's Approximation Method, Optimal solution through MODI Method
Formulation of Assignment model, Hungarian Model for solving Assignment problem

Module 4: Queuing Theory   6 hrs
Introduction, Features of Queuing Theory, Assumptions, Service systems, Single server queuing models, Multi-server queuing models

Module 5: Simulation   10 hrs
Meaning of simulation, Steps in simulation, Advantages and Disadvantages, Monte Carlo Simulation Technique, Business Simulation, Simulation and Inventory Control, Simulation and

Financial Decision Making

Module 6: Network Analysis: Pert and CPM   10 hrs
Programme Evaluation and Review Technique (PERT): objectives, Assumptions, terminology, errors in network, rules to frame Networks, Creating Networks, Activity times and Critical Path, Slack and Float, Project Variance, merits and demerits, Project Cost Analysis Critical Path Method (CPM): Time estimations in CPM, limitations

Course Outcomes
1. Apply OR principles to real-world scenarios.
2. Formulate linear programming models for maximising or minimising objectives.
3. Design transportation models for logistic planning and resource allocation.
4. Employ optimisation techniques to minimise transportation costs.
5. Solve assignment problems for optimal resource allocation with multiple constraints.
6. Analyse queuing systems to optimise service levels and resource allocation in different settings such as banking, call centres , etc.
7. Apply PERT (Program Evaluation and Review Technique) and CPM (Critical Path Method) for project planning, scheduling, and risk management.
8. Construct project networks and calculate critical path and project duration to determine the most time-sensitive activities.

Skill Development
1. Practice identifying decision variables and constraints in real- world scenarios. Solving LPP using solver on EXCEL.
2. Develop the ability to formulate transportation models from given data on supply, demand, and transportation costs. Apply techniques like Vogel's Approximation Method to find feasible solutions.
3. Apply assignment models to solve problems in areas like job scheduling or task allocation.
4. Develop models to match volunteers with projects based on skills and interests, ensuring optimal project outcomes.
5. Design experiments to analyze the behavior of systems under different conditions (arrival rates, service times, resource levels).
6. Analyze queuing models to optimize the number of tellers and minimize waiting times for customers in a bank.
7. Apply PERT/CPM to schedule construction activities, track progress, and identify potential delays.

References
- Sharma, S. D., Ram, K., & Nath, N. Operations Research. Kedarnath Ram, Nath & Co.

- Sharma, J. K. Operations Research: Theory and Applications. Macmillan Publications India Ltd.
- Taha, H. A. Operations Research: An Introduction. Prentice Hall.
- Hillier, F. S., & Lieberman, G. J. Introduction to Operations Research. McGraw-Hill Education.
- Sharma, J. K. Operations Research: Theory and Applications. Macmillan Publishers India.
- Mohan, M. Operations Research: An Introduction. Sultan Chand & Sons.
- Kalavathy, S. Operations Research: Theory, Methods and Application. New Age International Publishers Ltd.
- Gupta, M. N., & Gupta, P. K. Operations Research: Concepts and Cases. Tata McGraw-Hill Education.
- Vohra, N. D. Operations Research: A Practical Approach. Everest Publishing House.

SEMESTER V
S1 22 DC 504: DATA ANALYTICS USING R PROGRAMMING

Course Objective

Develop proficiency in conducting exploratory data analysis (EDA) and utilizing data visualization techniques in R to extract insights and patterns from diverse datasets, ultimately aiding in informed decision-making processes in data analytics.

Course Outcomes:
- Understand the foundational aspects of data analytics.
- Identify basic R data structures relevant to modern data analysis.
- Use several tools for data preprocessing and interpretation.
- Apply statistical inference concepts, formulate hypotheses, and conduct various types of hypothesis tests using R programming.
- Perform regression and classification models using R, including fitting multiple linear regression and logistic regression models.

Module 1: Introduction to Data Analytics   **8hrs**
Foundational aspects of data analytics - definition and scope of data analytics, importance, and applications of data analytics, data types and data sources, data collection, cleaning and preprocessing techniques, exploratory data analysis (EDA) and data visualization techniques.

Module 2: Introduction to R   **12 hrs**
Introduction to R Programming Language, R Studio Environment, Basic Data Types: Numeric, Character, Logical, Basic Operations: Arithmetic, Logical, Relational, Introduction to Functions and Control Structures (if-else, loops), User defined function, Hands-on Exercises and Assignments

Module 3: Data Manipulations Using R   **15 hrs**
Data Structures: Vectors, Matrices, Lists, Data Frames: Creation, Manipulation, and Sub setting, Data Import and Export: CSV, Excel, Text files, Introduction to R Packages and Libraries, Data Visualization: Bar plot, pie chart, histogram, box-plot, and ggplot library, missing values and outliers a analysis, Hands-on Exercises and Assignments.

Module 4: Statistical Testing of Hypothesis Using R   **15 hrs**
Introduction to Statistical Inference, Hypothesis Formulation and Types of Hypothesis Tests,

One-Sample and Two-Sample t-tests and Z-tests in R, Chi- Square Test of Independence, ANOVA (Analysis of Variance)

Module 5: Regression Analysis in R   10 hrs
Introduction to Regression Analysis, Fitting Simple Linear Regression and Multiple Linear Regression using R, Model Validation and Assumptions Checking using R, Fitting Logistic Regression for Binary Classification using R and testing the accuracy of the model.

Skill Component:
- Exploratory Data Analysis (EDA) and utilizing data visualization techniques to extract insights and patterns from data sets using R.
- Classification and Regression Analysis on R.
- Diagrammatic and Graphical representation of data using R.
- Conduct hypothesis tests using R, interpret results, and make informed decisions based on statistical inference.

References:
1. Provost, F., & Fawcett, T. Data Science for Business.
2. Wickham, H., & Grolemund, G. R for Data Science.
3. Wickham, H. Advanced R.
4. Bruce, P., & Bruce, A. Practical Statistics for Data Scientists.
5. Cameron, A. C., & Trivedi, P. K. Regression Analysis of Count Data.
6. Zuur, A. F., et al. A Beginner's Guide to R. Springer.
7. Spector, P. Data Manipulation with R. Springer.

SEMESTER V
S1 22 DE 501: INTERNATIONAL ECONOMICS

Course Objectives

To provide knowledge of fundamentals in international economic theory

To provide an understanding of the working of the internation economic Institution

Module -1 Theory of International Trade   **10 hrs**

Introduction- Difference between Inter-regional and International Trade- Adams Smiths' theory of Absolute Advantage-Ricardian theory of trade- Haberler's Theory- H.O theory of International trade- Leontief paradox- Factor price equalisation theorem

Module -2 Terms of Trade   **8 hrs**

Terms of trade, derivation of international trade-indifference curves-Offer curves and terms of trade, static and dynamic gains from trade.

Module -3 Trade Restrictions and Commercial Policies   **8 hrs**

Free Trade vs Protection, methods of restriction-tariff quotas and non-tariff barriers-partial equilibrium analysis -general equilibrium of a small country - effect of tariff-Dumping- anti-dumping measures-Exchange Control.

Module 4 Economics of Integration   **10 hrs**

Forms of economic operation-trade creation diverting of customs union, regional cooperation. World Bank, IMF and WTO-functions, International negotiations: GATT, Trips and Trims - Doha round

Module 5 Balance of Payment and Foreign Exchange Markets   **9 hrs**

Balance of payment -meaning and components-Disequilibrium in the balance of payments methods of correcting the BOP-foreign exchange rate of supply and demand of foreign exchange purchase power parity theory and DOP theory of foreign exchange rate

Course Outcome
- Understand the nature and scope of international economics, explain the Ricardo's theory of International trade
- Explain the different concepts of terms of trade
- Explain the structure of BOP, disequilibrium in BOP, causes of disequilibrium
- Describe the foreign exchange rate and determine its equilibrium exchange rate
- Explain the objectives of IMF and IBRD

Skill Development

1. List the variables that influence International Business decisions
2. Design the role of various international theories and their impact on international trade policy
3. Examine the forms of International Trade and its implication
4. Evaluate the Role of International Bodies in promoting the trade and Development of a country (s) in the context of Free Trade and Protection Regime

References

1. Petropoulou, D., & Vanags, A. International Economics. University of London, Subject Guide.
2. Sodersten, B. International Economics. Palgrave Macmillan.
3. Carbaugh, R. J. International Economics. South-Western College Publishing.
4. Krugman, P. R., & Obstfeld, M. International Economics: Theory and Policy. Pearson.
5. Cherunilam. International Economics. McGraw Hill Education.
6. Salvatore, D. International Economics. Wiley.

UG 21 VEC 021: STOCK TRADING

COURSE OBJECTIVE

This course enables students with the basic understanding of the stock markets and its functioning along with equipping them with the knowledge of trading and also to choose stocks using fundamental and technical analyses.

Module 1: Introduction to Financial System   4 Hrs

Overview of Financial System: Institutions, Markets, Instruments & Services - SEBI & RBI - Capital Markets – Primary Market: IPO: Types, Procedure & Participants – Types of Financial Instruments – Credit Rating

Module 2: Stock Market Participants   6 Hrs Regulatory Bodies:

SEBI & RBI – Depositories – Depository Participants – Brokers – Investors: Institutional & Retail Investors Stock Exchanges – Stock Market Indices

Module 3: Stock Trading   5 Hrs

Demat Account – Trading Account - Procedure for Trading – Types of Orders – Clearing & Settlement – Factors considered for choosing a Broker

Module 4: Fundamental Analysis   8 Hrs

Introduction – Factors considered for Fundamental Analysis: Economy, Industry & Company – Case-study Analysis using Screener (or any other platform)

Module 5: Technical Analysis   12 Hrs

Introduction – Dow Theory – Chart Types – Candle Stick Patterns – Support & Resistance – Technical Indicators: MACD, EMA, ROC, RSI & Stochastic Oscillators –Choosing Stocks using Technical Tools

Module 6: Derivatives Trading   10 Hrs

Introduction – Features of a Financial Derivative – Types of Financial Derivatives –Uses of Derivatives – Critiques of Derivatives - Forward Contract: Features, and Trading Mechanism – Futures Contracts: Features - Classification of Futures Contracts & Forward Trading Mechanism – Forward Prices vs Future Prices - Options – Moneyness of the Options – Intrinsic Value and Time Value - Pay-off for Options - Option Trading Strategies: Bullish strategies/Bearish strategies/Neutral strategy-any two strategies from each category

Skill Development

1.   Investigate and present various aspects of capital markets, primary markets, IPO types,

procedures, and participants.

2. Engage in a virtual stock trading simulation, applying knowledge about stock exchanges, stock market indices, and types of financial instruments.
3. Study SEBI, RBI, and their roles; analyze the functions of stock exchanges, depositories, and depository participants.
4. Participate in mock trading sessions to simulate real-life trading experiences, practicing different types of orders and their execution.
5. Engage in hands-on exercises related to clearing and settlement processes, ensuring understanding of trade finalization.
6. Analyze real-world charts applying Dow Theory, understanding various chart types and identifying patterns.
7. Practice identifying candlestick patterns like doji, hammer, etc., and learn their implications.
8. Work with technical indicators like MACD, EMA, ROC, RSI, and Stochastic Oscillators, applying them to historical data for trend analysis.

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

1. Understand capital markets, IPO procedures, stock exchanges, and financial instruments comprehensively.
2. Gain insights into regulatory bodies, stock market functions, depositories, brokers, and investor types.
3. Develop proficiency in trading procedures, order types, and clearing and settlement processes.
4. Master the fundamental analysis using Screener or any other platform
5. Master technical analysis basics, including Dow Theory, chart patterns, candlesticks, and key technical indicators' application
6. Master derivative trading and various strategies

BOOK FOR REFERENCE
- *Avadhani, Security Analysis & Portfolio Management, 12th Revised Edition, Himalaya Publishing House, 2020*
- *Bhalla, Security Analysis & Portfolio Management, 11th Revised Edition, S Chand Publication, India, 2020*
- *Murphy, J. J. (2023). Technical Analysis of the Financial Markets: A Comprehensive Guide to Trading Methods and Applications. New York Institute of Finance.*
- *Prasanna Chandra, Managing Investments, 6th Edition, McGraw Hill Education, 2021*
- *Punithavathy Pandian, Security Analysis & Portfolio Management, 5th Edition, Vikas Publishing House, 2013*