MINUTES OF MEETING OF THE BOARD OF STUDIES IN ECONOMICS
HELD ON 21st February 2024

Vide Chowgule College notice **F. 133C/1382 dated 12th February 2024** a meeting of this B.O.S. was convened on **21st February 2024** at 2:00 p.m. via online mode. Since the number of members present represented the Quorum, the BOS began its proceedings.

Members present:

1. Dr. Rupali Tamuly- Chairperson
2. Mr. Ramu P. Pagi- Member Secretary
3. Ms. Aishwarya Desai- Member
4. Ms. Parvin Koppal- Member
5. Ms. Sharanya R. - Member
6. Dr. Malati Roy - Academic Council Nominee
7. Dr. Meenakshi Bawa- Academic Council Nominee
8. Dr. Aparna Lolayenkar - Vice-Chancellor Nominee
9. Ms. Swara Naik- Alumni

Member Absent without Intimation

1. Abhijit Chatterjee - Industry Representative

P.O. Fatorda, Gogol-Margao, Goa 403602, Phone:0832-2722222, Fax: 0832 2759067, Email: principal@chowgules.ac.in

Proceedings

The Chairperson welcomed the members of the Board of Studies (B.O.S.). The Chairperson introduced and explained the agenda for the meeting and read out the minutes of the previous B.O.S meeting. The meeting proceeded with the following agenda.

Agenda Items:

1. Approval of syllabus of Minor courses, Skill enhancement courses and Vocational courses
2. Revision of CLO & PSO alignment of CLO with PSO/ PO under OBE under NEP 2020
3. A.O.B

PART A: The BOS passed the resolutions as follows:

1. Approval of Syllabus of Minor, Skill Enhancement and Vocational Courses

- The Chairperson, Dr. Rupali Tamuly, presented the Minor, Skill Enhancement and Vocational courses syllabus. The BOS members passed the resolution to approve the same.

    - Minor courses: 1) Principles of Economics; 2)Economics of Social Sector; 3)Economics of Infrastructure; 4) Economics and Governance; 5) Home Economics.

    - Vocational course: 1)Game Theory and Applications.

    - Skill enhancement Course: 1)Data Management and Presentation using Microsoft Excel.

2. To approve the CLO & PSO alignment of CLO with PSO/ PO under OBE under NEP 2020

The chairperson presented the CLO & PSO alignment of CLO with PSO/ PO under OBE under NEP 2020

The BOS members passed the resolution for approval of the same.

3. **AOB**

The chairperson presented the following point under AOB:

- Shuffling and shifting of the courses from one semester to another if the need arises without prior approval of BOS.

- The BOS members passed the resolution to approve the same.

PART B

Vide Chowgule College notice **F.133(C)/761 dated 12th February 2024** a meeting of this B.O.S. was convened on **21st February 2024** at 2:00 p.m. via online mode.

Important points/recommendations of BOS that require consideration/approval of the academic council:

- To seek approval of the syllabus of the courses covering: Minor, Skill Enhancement and Vocational courses. **Annexure C**
    - **Minor courses:** Principles of Economics for semester I; Economics of Infrastructure for semester II; Economics of Social Sector for semester III; Economics and Governance and Home Economics for semester IV.
    - **Vocational course:** Game Theory and Applications for Semester IV.
    - **Skill Enhancement course:** Data Management and Presentation using Microsoft Excel for Semester III.
- To seek approval for the CLO & PSO alignment of CLO with PSO/ PO under OBE under NEP 2020. **Annexure A, B**

The following members of the Board of Studies in Economics attended the meeting.

Members present:

1. Dr. Rupali Tamuly
2. Mr. Ramu P. Pagi
3. Ms. Aishwarya Desai
4. Ms. Parvin Koppal
5. Ms. Sharanya R.
6. Dr. Malati Roy
7. Dr. Meenakshi Bawa
8. Dr. Aparna Lolayenkar
9. Ms. Swara Naik

Member Absent without Intimation

1. Abhijit Chatterjee

Date: 24 February 2024

Mr. Ramu Pagi
Member Secretary
Board of Studies

Dr. Rupali Tamuly
Chairperson
Board of Studies

PART C: The remarks of the Dean of the Faculty: -

a. The minutes are in order.

b. The minutes may/not be placed before the Academic Council with remarks, if any.

c. Important points of the minutes that need clear policy decisions of the Academic Council to be recorded.

Date: 26 February 2024

Signature of the Dean:
(Faculty of Arts/Science)

Dr. Meghana Devli

PART D: The remarks of the Members Secretary of the Academic Council: -

a. The minutes are in order.

b. The minutes may be placed before the Academic Council with remarks, if any.

c. Important points of the minutes which need clear policy decisions of the Academic Council to be recorded.

Date: 26/2/24

Signature of the Member Secretary
Academic Council

Mr. V.C. Kumaresh

Annexure A

Summary of the changes incorporated in CLOs

Semester	Course	Existing CLOs	Revised CLOs	Reason for revising
II	UG-ECO-102: Economics of Growth and Development	**CLO1**: Distinguish between the concept of economic growth & development **CLO2**: Calculate of Human development index **CLO3**: Mind-map the theories of growth and development on a timeline **CLO4**: State the patterns of growth based on classical & neoclassical theories of growth and development **CLO5**: Give examples of economies which have experienced growth & development in line with any given theory.	**CLO1:** Distinguish between the concept of economic growth & development. **CLO2:** Examine the patterns of growth based on classical & neoclassical theories of growth and development. **CLO3:** Mind-map the theories of growth and development on a timeline **CLO4:** Give examples of states in India which have experienced growth & development in line with any given theory.	To map the CLO with PSO

Annexure B

PROGRAMME LEARNING OUTCOMES (PLO)

After successful completion of a three-year Bachelor's degree in Economics, the student will be able to:

PLO-1: Competence of Economic Knowledge	To achieve a comprehensive understanding of economic theories, principles, and methodologies.
PLO-2: Practical Application of Economic Skills	To apply economic theories and quantitative methods to analyze real-world economic phenomena effectively.
PLO-3: Promoting Social Responsibility	To foster a strong sense of social responsibility in addressing economic challenges and promoting the welfare of society.
PLO-4: Collaboration and Innovation for Economic Development	To collaborate with stakeholders from various sectors to develop innovative solutions to economic problems, fostering sustainable economic development and societal progress.

Annexure C
NEW SYLLABUS
(To be implemented w.e.f. Acad. Year 2024 - 2025)

Course Title: Principles of Economics (MINOR)
Course Code: UG ECO 103
Credits: 4
Marks: 100
Duration: 60 Hours

Prerequisite Courses: (NIL)
Course Objectives:

This minor course in economics aims to introduce the fundamental concepts and tools necessary to understand the economic decision-making of market participants such as individual households, firms, and the government. The course coverage primarily encompasses the two major areas of economics namely Microeconomics and Macroeconomics.

Course Learning Outcomes:
Upon completion of the course, the student will be able to:
CLO1: Define the basic concepts of economics and identify economic problems that require decision-making.
CLO2: Explain how supply and demand affect market prices and quantities.
CLO3: Arrange different market structures based on the degree of competition.
CLO4: Understand the macroeconomic concepts related to national income.

Course Content:

Module I: Thinking Like an Economist and Basic Principles of Economics (15 Hours)
Decision making; functioning of an economy; normative and positive economics; circular flow diagram; production possibility frontier.

Module II: Demand, Supply and Market Equilibrium (15 Hours)
Law of demand, Law of supply; Factors affecting demand and supply; market equilibrium; elasticity of demand and elasticity of supply; consumers' surplus and producers' surplus.

Module III: Market Structure (15 Hours)
Firms and markets; perfect competition, monopoly (Bilateral Monopoly), Monopolistic competition, oligopoly.

Module IV: Macroeconomic Concepts and Policies (15 Hours)

Concepts of National income, Unemployment and inflation: Concepts and Causes; Growth and stabilisation objectives; Introduction to Fiscal and Monetary Policy measures.

List of books recommended for reference.

Mandatory reading:

1. Mankiw, N. G. (2016). *Principles of microeconomics* (8th ed.). CENGAGE Learning Custom Publishing.
2. Dominick, S. (2012). *Principles of Micro Economics* (8th ed.). Oxford International student edition.

Supplementary reading:

1. Tucker, I. (2005). *Economics for Today*. Cengage Learning, Inc.
2. Pindyck, R. S. (2012). *Microeconomics*. Pearson Delhi.

Online Resources:

1. **https://s.docworkspace.com/d/AHKfZ6DYjI4uwfvQ_JOdFA**
2. **https://www.google.com/url?sa=t&source=web&rct=j&url=https://mpra.ub.uni-muenchen.de/390/1/MPRA_paper_390.pdf&ved=2ahUKEwjFzsWugcHkAhUfTY8KHUQaABYQFjAPegQIBxAB&usg=AOvVaw2GV4rf2L5axBFyI3HuAu3J**
3. **https://mpra.ub.uni-muenchen.de/390/1/MPRA_paper_390.pdf**
4. **https://econpapers.repec.org/bookchap/eeelabchp/5-11.htm**

Course Title: ECONOMICS OF INFRASTRUCTURE (Minor)
Course Code: UG ECO 104
Credits: 4
Marks: 100
Duration: 60 Hours

Prerequisite Courses: (NIL)
Course Objectives:

This course aims to familiarise the students with the role of infrastructure in economic development and growth and key issues in financing, governance and inter-regional disparities. This paper also aims to exposit main categories of infrastructure, including physical and social with special reference to the Indian economy.

Course Learning Outcomes:
Upon completion of the course, the student will be able to:

CLO1: Understand the economic principles and frameworks that bridge infrastructure development and investment.
CLO2: Understand the role of physical infrastructure in supporting economic growth and development.
CLO3: Examine the importance of economic infrastructure in supporting economic activities.
CLO4: Illustrate the role of government policies and regulations in shaping infrastructure investment decisions.

Course Content:

Module I: Role of Infrastructure in Economic Development (15 Hours)
Infrastructure-Development Linkages; Infrastructure as Public Good – Issues in non-excludability and non-rivalrous consumption; Physical and Social Infrastructure; Nature of Public Utilities; The Peak-Load, Off-Load Problem; Issues in Privatisation of Infrastructure.

Module II: Physical Infrastructure (15 Hours)

Transportation*:* Railways, Roadways, Airways and Waterways: Progress, Pricing; Technological Advancement and Challenges. New policies/programmes related to each mode of transportation.

Communication: Tele-density, Mobile and Internet, Social Media; Growth of IT-ITES.

Module III: Economic Infrastructure (15 Hours)

Energy, Electricity and Special Economic/Investment Zones*:* Power Generation, Distribution and Pricing; Privatisation of Electricity; Coverage; Alternative (Renewable and Unconventional) Sources of Energy, including Nuclear, Solar and Wind Energy; Energy Conservation; Problems and Potential of SEZs, Export Processing Zones (EPZs) and Special Investment Region (SIR).

Banking and Financial Services: Spread and Performance of Banking Services; Technology Interface of Financial Services; Financial Inclusion Initiatives.

Module IV: Special Initiatives/Programmes in Rural and Urban Infrastructure (15 Hours)

MGNAREGA and infrastructure; Provision of Urban Amenities in Rural Areas (PURA); PMGSY; Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY); Reviving Water Harvesting Systems and Watershed; Swachh Bharat Mission (Rural and Urban); Smart City: Key Components, Performance and Challenges.

List of books recommended for reference:

Mandatory reading:

1. Crew, M. A., & Kleindorfer, P. R. (1979). *Public Utility Economics*. Macmillan.
2. Goel, M. M. (2011). *Economics of Human Resource Management in India*. VK Global Publications.

Supplementary reading:

1. Morris, S. (2007), 'Infrastructure', in Kaushik Basu (Ed.), *The Oxford Companion to Economics in India*, Oxford University Press, New Delhi.
2. Raghuram, G., R. Jain, S. Morris, P. Pangotra and S. Sinha (Eds.) (1999), *Infrastructure Development and Financing: Public Private Partnership*, Macmillan India Ltd, New Delhi.

Online Resources:

1. **https://mnre.gov.in/**
2. **Government of India: Economic Survey, Recent Issue https://www.indiabudget.gov.in/economicsurvey/**
3. **Annual Reports of Concerned Ministries of the Government of India https://www.india.gov.in/my-government/documents/annual-report**

Course Title: HOME ECONOMICS (Minor)
Course Code: UG ECO 105
Credits: 04
Marks: 100
Duration: 60 hours

Prerequisite Courses: (NIL)

Course Objectives:

This course aims to offer a study in family economics covering decision-making, labour impact, poverty, and health. It further assists students in exploring resource allocation, poverty challenges, education, and health investments within households, addressing economic implications and solutions.

Course Learning Outcomes:
Upon completion of the course, the student will be able to:
CLO1: Understand the household decision-making processes and resource allocation within families.
CLO2: Analyze the economic impacts of different family structures on labour allocation and economic outcomes**.**
CLO3: Evaluate the role of economic factors in perpetuating poverty and inequality within families.
CLO4: Examine the economic implications of investment in education and healthcare as human capital.

Course Contents:

Module I: Economics of Family Decision-Making and Resource Management (15 Hours)

Household production theory, Allocation of time and resources within families, Intra-household bargaining and decision-making processes, Budgeting and financial management, Resource allocation and decision-making, Time management and productivity, Conflict resolution and problem-solving.

Module II: Economic Impact of Family Structure and Labor (15 Hours)

Family structures and economic outcomes, Economic implications of single-parent households, Economics of marriage and divorce, Division of labour within households, and Economic implications of unpaid domestic work.

Module III: Poverty and Inequality in Family Economics (15 Hours)

Socio-economic challenges faced by low-income families, Welfare economics and social safety nets, Intergenerational poverty and economic mobility, Feminization of poverty, Role of Social capital and institutional solutions for mitigation of poverty in India.

Module IV: Economics of Education and Health as Human Capital (15 Hours)

Investment in education within families, Availability of finance for education, Economic returns to education, Intergenerational transmission of human capital,

Economic factors influencing health choices, Healthcare access and affordability, Economic consequences of health-related decisions, and Economic Challenges in ageing.

List of books recommended for reference

Mandatory reading:

1. Browning, M., & Chiappori, P. (1998). *The Economics of the Family*. Cambridge University Press.
2. Ferber, M. A., & Birnbaum, B. G. (1977). The "new home economics:" Retrospects and prospects. *Journal of Consumer Research*, *4*(1), 19-28.

Supplementary reading:

1. Carbone, J., & Cahn, N. (2014). *Marriage Markets: How Inequality is Remaking the American Family*. Oxford University Press.
2. Banerjee, A. V., & Duflo, E. (2011). *Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty*. Public Affairs.
3. Bartik, T. J. (2011). *Investing in Kids: Early Childhood Programs and Local Economic Development*. W.E. Upjohn Institute for Employment Research.
4. Bhattacharya, J., Hyde, T., & Tu, P. (2013). *Health Economics*. Palgrave Macmillan.
5. Schulz, J. H. (2011). *The Economics of Aging*. Greenwood.
6. Becker, G. S. (1965). A Theory of the Allocation of Time. *The Economic Journal, 75*(299), 493–517. Link
7. Lundberg, S., & Pollak, R. A. (1996). Bargaining and Distribution in Marriage. *The Journal of Economic Perspectives, 10*(4), 139–158. Link
8. Edin, K., & Lein, L. (1997). Making Ends Meet: How Single Mothers Survive Welfare and Low-Wage Work. *Russell Sage Foundation***.**
9. Cunningham-Sabo, L., & Simons, A. (2012). Home economics: An old-fashioned answer to a modern-day dilemma? *Nutrition Today*, *47*(3), 128-132.

Online Resources:

1. 1OECD (Organization for Economic Co-operation and Development). (2022). *Education at a Glance*. https://www.oecd-ilibrary.org/education/education-at-a-glance_19991487
2. World Health Organization (WHO). (2022). *Health Systems*. https://www.who.int/healthsystems/en/
3. The Brookings Institution. (2022). *Retirement Security Project*. https://www.brookings.edu/project/retirement-security-project-rsp/

Course Title: Economics of Social Sector (Minor)
Course Code: UG ECO 207
Credits: 4
Marks: 100
Duration: 60 Hours

Prerequisite Courses: (NIL)
Course Objectives:
This course aims to enhance the understanding of the students about the role of social sectors in the process of development. The course is structured to equip them with recent discourses and new tools in the economics of education and health.

Course Learning Outcomes:
Upon completion of the course, the student will be able to:

CLO1: Understand the economic principles and concepts that apply to the social sector.
CLO2: Analyze the healthcare system, its challenges, and policies.
CLO3: Explore the economic principles and concepts in the education sector.
CLO4: Understand the disparity in healthcare access, resource allocation and health outcomes based on socio-economic factors.

Course Content:

Module I: Introduction to Economics of Social Sector (15 Hours)
Relevance and Application of Economics of Social Sector, Channels of Social Sector Development, Human Capital Development and Social Sectors, Introduction to the economic model of human capital; Role of different levels of government.

Module II: Health Sector in India (15 Hours)
Global burden of diseases, India's position in the world concerning Communicable and non-communicable diseases, Performance of the States, Various challenges; Poverty and Malnutrition; Environmental health problems; Various government policies, and the Impact of COVID-19 on the Indian health system; Health Outcomes, Health system, Health financing pattern.

Module III: Economics of the Education Sector and its Implications in India (15 Hours)
Cost of education: private and social cost, direct and opportunity cost, Pattern of educational finance in India; Benefits: returns to education, Mincerian returns to education, private and social benefits; Education, employment and income, Education and economic growth, New Education Policy: social and economic impact.

Module IV: Social Sector and Inequality **(15 Hours)**

Inequality in health spending and outcomes; Inequality in educational achievements and expenses; Linkages between income inequality, poverty, education, and health.

List of books recommended for reference:

Mandatory reading:

1. Becker, G.S. (1974). *Human Capital. 2nd edition*, NBER, New York.
2. Blaug, Mark (1972). *Introduction to Economics of Education,* London: Penguin.
3. Folland, S., A.C. Goodman, and M. Stano (2001). The Economics of Health and Health Care. New Jersey: Prentice Hall.

Supplementary reading:

1. Phelps, Charles E. (2010). *Health Economics*. 4th edition, Prentice Hall.
2. Tilak, J.E.G. (1989). *Economics of Inequality in Education*. New Delhi: Sage.

Online Resources:

1. **https://mnre.gov.in/**
2. **Government of India: Economic Survey, Recent Issue https://www.indiabudget.gov.in/economicsurvey/**
3. **Annual Reports of Concerned Ministries of the Government of India https://www.india.gov.in/my-government/documents/annual-report**

Course Title: Economics of Governance (Minor)
Course Code: UG ECO 208
Credits: 4
Marks: 100
Duration: 60 Hours

Prerequisite Courses: (NIL)

Course Objectives:

The course aims to provide an understanding of governance's impact on growth, policies shaping the economic environment, and social infrastructure's role. It further equips students to analyze governance issues, strategies for effective governance, challenges, and lessons from developed and developing countries along with an evaluation of governance in contemporary India.

Course Learning Outcomes:
Upon completion of the course, the student will be able to:
CLO1: Outline the concepts, principles, and dimensions of governance.
CLO2: Apply the concept of good governance to address governance issues in public provisioning.
CLO3: Examine the experience of developed and developing countries based on broad-based. governance criteria.
CLO4: Justify the need for governance through participatory development and practice good governance in India.

Course Content

Module I: Governance and Growth Interface (15 Hours)
The concept of governance and growth: Governance in the public and private sector, Policies that make up the economic environment for the development of good governance; Role of social infrastructure to facilitate action-oriented and participatory development; state failure versus market failure.

Module II: The Issues of Governance (15 Hours)
The issues of governance: Role of the State and other institutions; Strategies to address. governance issues: provisions, effectiveness, challenge,

Module III: Experiences of Developed and Developing Countries (15 Hours)
Experiences of developed and developing countries based on broad governance criteria, Lessons for broad-based growth.

Module IV: Governance in Contemporary India (15 Hours)

Need for good governance in India; Important issues and challenges related to evaluation, growth and governance, Importance of time-bound decisions, Execution, and accountability.

List of books recommended for reference.

Mandatory reading:

1. North, D., Acemoglu, D., Fukuyama, F., & Rodrik, D. (2008). *Governance, growth, and development decision-making* (No. 44186, pp. 1-44). The World Bank.

2. Dixit, A. K. (2004). *Lawlessness and economics: Alternative modes of governance* (Vol. 5). Princeton University Press.

3. Tabb, W. K. (2004). *Economic governance in the age of globalization*. Columbia University Press.

Supplementary reading:

1. Morris, S. (2002). *The challenge to governance in India*. *India Infrastructure Report*.

2. Goel, P. (2018). *Implications of corporate governance on financial performance: an analytical review of governance and social reporting reforms in India*. Asian Journal of Sustainability and Social Responsibility, 3(1), 1-21.

3. Pardeep Sahani& Uma Medury (2003), *Governance for Development: Issues and Strategies*, Prentice–Hall India Private Ltd.
4. Bala, M., & Verma, D. (2018). *Governance to good governance through e-Governance: A critical review of concept, model, initiatives & challenges in India.* International Journal of Management, IT and Engineering, 8(10), 244-269.
5. Sebastian, M. P., & Supriya, K. K. (2013). E-governance readiness: challenges for India. *IIM Kozhikode Society & Management Review*, *2*(1), 31-42.
6. Singh, B. P. (2008). The challenge of good governance in India. *Social Change*, *38*(1), 84-109.

Online Resources:

1. **https://www.weforum.org/agenda/global/**
2. **https://www.icmai.in/Knowledge-Bank/upload/case-study/2014/Corporate-Governance.pdf**
3. **https://i.unu.edu/media/unu.edu/publication/1377/report414.pdf**

Course Title: GAME THEORY APPLICATIONS (VOC)
Course Code: UG-ECO-VOC2
Credits: 4
Marks: 100
Duration: 60 Hours

Prerequisite Courses: (NIL)

Course Objectives:

This course aims to introduce the students to optimal decision-making in interactive settings. This course deals with the solution concepts for normal-form and extensive-form games, along with various applications. Ideas related to asymmetric information among the interacting agents are also analysed in this course.

Course Learning Outcomes:

Upon completion of the course, the student will be able to:
CLO1: Understand the concept of static games and their applications in decision-making.
CLO2: Analyse the strategies and payoffs in simultaneous move games.
CLO3: Analyse the strategies and payoffs in dynamic game
CLO4: Understand the concept of Asymmetric Information Models

Course Content

Module I: Static Games of Complete Information (15 Hours)
Concepts: What is a game of Strategy? How to think about strategy? Decision versus Game, Some terminology and Background Assumptions, Static versus Simultaneous Move Game, Games of Complete and Incomplete Information, Use of Game Theory,

Module II: Simultaneous Move Games with Pure Strategies (15 Hours)
Discrete Strategies; Normal Form of Representation of Games, Solution Concepts: Dominant Strategy: Prisoners Dilemma Game, Iterated Dominance, Nash Equilibrium, Mini-max Methods for Zero-Sum Games; Matching of Pennies: no Equilibrium in Pure Strategies; Multiple Equilibrium in Pure Strategies: Battle Sexes Game, Coordination Games, Chicken Games, Focal Point; Economic Applications: Best Response Functions, Cournot Equilibrium.

Mixed Strategy Equilibrium: Expected Utility, Best Response Analysis, Case of Domination by a Mixed Strategy.

Module III: Dynamic Games of Complete Information (15 Hours)

Extensive Form of a Game with Perfect Information: Information Sets, strategies and Outcomes, Nash Equilibrium, Backward Induction and Subgame Perfect Equilibrium in finite Horizon Game

Extensive Game with Imperfect Information: Repeated Games and Sub-game Perfection, Finitely Repeated and Infinite Repeated Games; Games with Incomplete Information.

Module IV: Information (15 Hours)

Categories of Asymmetric Information Models: Adverse Selection, Moral Hazards, Mechanism Design in Adverse Selection and Moral Hazards, Signaling and Screening

Principal-Agent Problem; Production Game: Full Information, Sequential Move, Fixed Wage, Output-based Wage under Certainty, Output-based Wage under Uncertainty;

Moral Hazard: Incentive Compatibility Constraint and Participation Constraint, Monopoly Solution, Moral Hazard in Insurance Markets; Adverse Selection: The Market for Lemons, Production Game

List of books recommended for reference

Mandatory reading:

1. Osborne, M. J. (2004). *An Introduction to Game Theory*. New Delhi: Oxford University Press.
2. Gibbons, R. (1992). *Game Theory for Applied Economists.* Princeton University Press.

Supplementary reading:

1. Dutta, P. (1999). *Strategies and Games - Theory and Practice*. MIT Press.
2. Tadelis, S. (2004). *Game theory: An introduction*. Princeton University Press.

Online Resources:

1. **https://gametheory101.com/**
2. **https://www.khanacademy.org/economics-finance-domain/ap-microeconomics/imperfect-competitionoligopoly-and-game-theory/v/game-theory-of-cheating-firms**
3. **https://economicsnetwork.ac.uk/teaching/Video%20and%20Audio%20Clips/Game%20Theory**

Course Title: DATA MANAGEMENT AND PRESENTATION USING MICROSOFT EXCEL (SEC)
Course Code: UG-ECO-SEC5
Credits: 3
Marks: 75
Duration: 45 Hours

Prerequisite Courses: (NIL)
Course Objectives:

This course aims to understand the most extensive tool used for analysis in general and in Business Analytics. This course will equip students with hands-on skills in MS Excel operations, enabling them to analyze and interpret data for decision-making and enhance their skill-based learning.

Course Learning Outcomes:
Upon completion of the course, the student will be able to:
CLO1: Understand the MS Excel interface and navigation.
CLO2: Acquire knowledge of various formulas and functions for data analysis.
CLO3: Learn advanced data management and automation techniques.

Course Content

Module I: Introduction to Excel and Data Entry (15 Hours)
Introduction to Microsoft Excel: Interface, navigation, and basic functions; Data entry and formatting: Inputting data, formatting cells, and applying formulas; Sorting and filtering data: Organizing and analyzing data using sorting and filtering techniques; Data validation: Ensuring data accuracy and consistency through validation rules; Conditional formatting: Highlighting data based on specific criteria; Data tables: Creating and analyzing one-variable and two-variable data tables.

Module II: Data Analysis and Visualization (15 Hours)
Formulas and functions: Working with mathematical, statistical, and logical functions; PivotTables: Creating dynamic summaries and analyzing large datasets using PivotTables; Charts and graphs: Visualizing data through various chart types and customizing visuals; Data analysis tools: Utilizing tools like Goal Seek, Solver, and Data Tables for advanced analysis; Data consolidation: Combining data from multiple sources and summarizing it in a single sheet; Advanced charting techniques: Creating advanced charts like waterfall charts and sparklines.

Module III: Advanced Data Management and Automation **(15 hours)**

Advanced functions: Exploring advanced functions like VLOOKUP, IFERROR, and INDEX-MATCH; Macros and automation: Recording and running macros to automate repetitive tasks; Data cleaning and manipulation: Techniques for cleaning and transforming data for analysis; Data protection and security: Implementing data protection measures and securing workbooks; Collaboration and sharing: Collaborating on workbooks, sharing files, and tracking changes; Power Query: Extracting, transforming, and loading data from various sources.

List of books recommended for reference

Mandatory reading:

1. Rajkumar, S., Nagarajan, G., & Naveen Kumar, M. (2010). *Fundamentals of MS Excel. Bangalore:* Jayvee International Publications.
2. Doge, M., & Stinson, C. (2012). *Microsoft Excel Latest Version Inside Out*. New Delhi: PHI Learning Private Limited.
3. Sengupta, C. (2012). *Financial Analysis and Modeling using Excel and VBA*. Wiley.

Supplementary reading:

1. Guerrero, H. (2010). *Excel Data Analysis – Modeling and Simulation*. Springer.
2. Winston, W. (2011). *Microsoft Excel 2013: Data Analysis and Business Modeling*. PHI.
3. Held, B. (2011). *Excel Functions and Formulas.* BPB Publications.

Online Resources:

1. **https://openoregon.pressbooks.pub/beginningexcel/chapter/1-2-entering-editing-and-managing-data/**
2. **https://support.microsoft.com/en-us/office/excel-video-training-9bc05390-e94c-46af-a5b3-d7c22f6990bb**
3. **https://www.simplilearn.com/tutorials/excel-tutorial/data-analysis-excel#descriptive_statistics**