

B.A. HONS. (Economics)
Department of Economics
School of Liberal Education

Syllabi of [UG Programme for Bachelor in Economics (Honours) degree] under School of Liberal Education to be implemented from the Academic Year 2024-25.



SANSKARAM
UNIVERSITY

Patauda, Jhajjar, Haryana, 124108

INTRODUCTION TO B.A. (HONS. WITH RESEARCH) ECONOMICS

The Department of Economics is committed to producing leaders for the 21st century who will push the boundaries of what is deemed possible and enlarge the visions of a just society through their work. Our undergraduate programs in economics are premised on building critical faculties and fostering independent thinking. Our four-year undergraduate program provides a holistic education in economic theory and quantitative economics. There are ample opportunities for students to take up summer internships to gain industry experience. The programs are student-centric, and faculty encourage students to think critically, be analytical, and ask questions to develop an independent mindset.

Nature of B.A. (HONS. WITH RESEARCH) ECONOMICS

B.A. (Hons. with Research) Economics is a four-year undergraduate degree that combines the study of economics with specialized research training. It emphasizes the in-depth exploration of economic theories, quantitative analysis, and research methodologies to develop critical thinking, analytical skills, and a deeper understanding of economic phenomena. The programs are student-centric, and faculty encourage students to think critically, be analytical, and ask questions to develop an independent mindset. They help in fostering not just a career but also personal growth of the individual self.

AIMS OF B.A. (HONS. WITH RESEARCH) ECONOMICS

B.A. (Hons with Research) in Economics program typically combines the rigorous study of economics with an emphasis on research skills and methodologies. This program aims to provide students with a deeper understanding of economics and to equip them with the skills necessary to conduct independent research in the field. The program also aims to produce students ready for market opportunities, be it jobs in the corporate sector, public sector, non-governmental/social sector, or a desire to pursue higher studies in economics or related discipline.

LEARNING OUTCOME-BASED CURRICULUM FRAMEWORK IN B.A. (HONS. WITH RESEARCH) ECONOMICS

The Learning Outcomes-based Curriculum Framework (LOCF) for B.A. (Hons with Research) in Economics provides a framework for the student-teachers to develop a range of knowledge, skills, attitudes, and values that teachers should possess to meet the educational needs of diverse learners, create an engaging and inclusive learning environment, and contribute to the overall improvement of the education system. The focus is to prepare students as future-ready i.e., to become entrepreneurs, economic analysts, or junior-level executives in the private and public sector industries or pursue higher education, by equipping students with a holistic view of the economic environment and its operations. The thrust of the program is on the personality development of the students by helping them acquire conceptual, analytical, problem-solving capabilities and emotional maturity. With the focus on Outcome-Based Education (OBE), our university is evolving an innovative, flexible, and multidisciplinary curriculum, allowing students to explore a creative combination of credit-based courses in variegated disciplines along with value-addition courses, Indian Knowledge Systems, vocational courses, projects in community engagement and service, value education, environmental education, and acquiring skill sets, thereby designing their learning trajectory.

GRADUATE ATTRIBUTES OF B.A. (HONS. WITH RESEARCH) ECONOMICS PROGRAMME

Graduate attributes are the qualities, skills, knowledge, and attitudes that students are expected to develop and possess upon completion of the B.A. (HONS. WITH RESEARCH) ECONOMICS Programme. The following attributes equip graduates with the necessary competencies to be effective educators and contribute to the field of education:

GA 1: Interdisciplinary Perspective: Graduates should appreciate how economics intersects with other disciplines, fostering an interdisciplinary approach to problem-solving.

GA 2: Communication Skills: Capable of communicating ideas, sharing views and expressing feelings by using language skills which will help in preparing and demonstrating lesson plans.

GA 3: Critical Thinking: Capable to evaluate practices, policies, and theories critically.

GA 4: Analytical Thinking: Graduates should be able to think critically and analyze complex economic issues, theories, and data to arrive at informed conclusions.

GA 5 Research Related Skills: Capable of initiating research by defining problems, formulating and testing hypotheses, interpreting and drawing conclusions from the data.

GA 6 Teamwork: Capable to work effectively in groups and act together in unity by showing accountability and ability as a team member.

GA 7 Problem-Solving: Graduates should be skilled problem solvers, capable of applying economic principles to real-world issues and proposing viable solutions.

GA 8 Digital Literacy: Capable to use ICT in a variety of learning situations, demonstrating the ability to access, evaluate, and use a variety of relevant information sources and use appropriate software for achieving learning outcomes.

GA 9 Lifelong Learning: Capable to acquire knowledge and skills, including “*learning how to learn*” which are necessary for participating in learning activities throughout life, with self-paced and self-directed learning outlook aimed at personal development, meeting economic, social and cultural objectives and adapting changing trades and demands of the workplace through knowledge/skill development.

GA 10 Moral and Ethical Values: Capable to embrace moral/ethical values in conducting one’s life, formulate a position/argument on ethical issues from multiple perspectives, and adapting moral practices in various work dimensions.

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

PEO 1: To prepare future Economists and thought leaders who will be able to solve dynamic socio-economic problems by exercising inclusivity at local and global levels.

PEO 2: To develop strong competencies in undergraduate-level students in broad fields of Economics and its applications in an Interactive environment.

PEO 3: To prepare students with competency in the practical application of economic theories.

PEO 4: To develop strong student research, data analysis, and interpretation skills.

PEO 5: To prepare the students to compete for employment in Economics, industries, research

methods, data analysis, policy-making entrepreneurship, etc.

PEO 6: To prepare socially responsible students who are rational and enlightened citizens so that they can take responsibility for spreading the government's initiatives/schemes to the rural areas for the upliftment of the poor or vulnerable section of society and inclusive growth.

PROGRAMME OUTCOMES (PO)

PO 1: Core Competency: Students will acquire core competency in the subject of Economics, and in allied subject areas

PO2: Subject Matter Competence- Graduates will possess a deep knowledge and understanding of the subject area(s) they specialize in, enabling them to teach the subject(s) effectively at the appropriate grade level(s).

PO3: Disciplinary knowledge and skill: A Graduate student are expected to be capable of demonstrating comprehensive knowledge and understanding of both theoretical and experimental/applied knowledge of economics in various fields of interest like budgeting and economic planning

PO4: Technology Integration- Be proficient in handling and interpreting economic data, and understanding data sources, limitations, and implications.

PO5: Global Perspective: Develop a global perspective on economic issues, recognizing the interconnectedness of economies and the global impact of economic decisions.

PO6: Policy Analysis and Recommendation: Analyze economic policies critically and provide informed recommendations for policy improvement or change.

PO7 Community Engagement: Recognize their role as responsible citizens and consider how economics can contribute to addressing societal issues and improving the well-being of communities.

PO8: Critical Thinking: Foster critical thinking skills, enabling students to critically evaluate economic theories, policies, and arguments, and to identify strengths and weaknesses.

PO9: Lifelong Learning- Graduates will recognize the importance of lifelong learning and professional development, actively seeking opportunities to enhance their knowledge, skills, and expertise in a rapidly changing technological landscape.

PO10: Independent Research: Demonstrate the capacity to conduct independent research projects, often culminating in a senior thesis or research paper that showcases originality.

PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO 1: To build a strong foundation in Economics by understanding the basic concepts, principles, and theories in Economics along with statistical analysis and research.

PSO 2: To understand competing economic paradigms and the historical development of the discipline.

PSO 3: Demonstrate an understanding of the basic functioning of the national and global economy; analyze historical and current events from an economic perspective.

PSO 4: Apply the tools of economic analysis to examine the impact of various government policies, rules, and regulations.

PSO 5: To develop the ability to apply the principles of Economics in everyday life.

Name of the Programme	Duration
B.A. (HONS. WITH RESEARCH) ECONOMICS	4 YEARS

PROGRAM DURATION

EXIT OPTIONS

Exit Option
1 st year
2 nd Year
3 rd Year
4 th Year

PROGRAMME STRUCTURE

FOUR-YEAR B.A. (HONS. WITH RESEARCH) ECONOMICS PROGRAMME AT A GLANCE

Semester	Hrs	Credits
I	25	23
II	24	24
III	24	23
IV	27	24
V	20	20
VI	22	19
VII	18	16
VIII	6	16

**SCHEME OF STUDIES FOR B.A. (HONS. WITH RESEARCH) ECONOMICS
First Semester**

S.No	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs.	Inter	Exter
									CAT	TH
1	070701001	Micro Economics-I	Major (DSC)	4	3	1	0	4	40	60
2	070701002	Macro Economics-I	Major (DSC)	4	3	1	0	4	40	60
3	070701003	Mathematical Methods for Economics-I	Major DSC	4	3	1	0	4	40	60
4	070701004	Minor 1	Minor	4	2	0	4	6	40	60
5		Constitutional Values and Fundamental Duties	VAC	2	2	0	0	1	20	30
6		Environmental Science	AEC	3	3	0	0	3	20	30
7		Cybersphere and Security: Global Concerns	SEC	2	1	0	2	3	20	30
Total credit = 23								25		

Second Semester

S.No	Course Code	Course Name	Category of Course	Credits	L	T	P	Hrs.	Intern	Extern
									CAT	TH
									CAT	CAT
1	070702001	Micro Economics- II	Major DSC	4	3	1	0	4	40	60
2	070702002	Macro Economics- II	Major (DSC)	4	3	1	0	4	40	60
3	070702003	Mathematical Methods for Economics-II	Major DSC	4	3	1	0	4	40	60
4	070702004	Minor 2	Minor	4	2	0	4	6	40	60
5		VAC 2 (Extension & Outreach Based)	VAC	2	-	-	-	-	20	30
6		1 from pool of University	OE	3	3	0	0	3	20	30
7		AEC-2	AEC	3	3	0	0	3	20	30
Total Credit = 24 Undergraduate Certificate in Economics (Total Credit =47) Summer Internship (2 Credit)								24		

Third Semester

S.NO	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs	Internal	External
									CAT1	TH
									CAT2	
1	070703001	Economics of Growth & Development-I	Major DSC	4	3	1	0	4	40	60
2	070703002	Statistical Methods Economics	Major (DSC)	4	3	1	0	4	40	60
3	070703003	Statistical Methods Economics-Practical	Major DSC	1	0	0	1	2	40	60
4	070703004	Minor 3	Minor	4	2	0	4	6	40	60
5		VAC 3 from Pool University	VAC	2	2	0	0	2	20	30
6		1 from Pool University (Inter-Disciplinary)	OE	3	3	0	0	3	20	30
7		AEC 3	AEC	3	3	0	0	3	20	30
8		Evaluation of Summer Internship		2	-	-	-			
Total Credit = 23								24		

Fourth Semester

S.No	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs	Inter	Exter
									CAT	TH
									CAT	
1	070704001	Economics of Growth & Development-II	Major DSC	4	3	1	0	4	40	60
2	070704002	Basic Econometrics	Major DSC	4	3	1	0	4	40	60
3	070704003	Econometrics Laboratory	Major DSC	1	0	0	1	1	40	60
4	070704004	DSE 1	Major (DSE)	4	3	1	0	4	40	60
5	070704005	Minor 4	Minor	4	2	0	4	6	40	60
6		1 from the pool of University (Inter-Disciplinary)	OE	3	3	0	0	3	20	30
7		VAC 4 from the pool of the University	VAC	2	2	0	0	2	20	30
8		SEC 2	SEC	2	1	0	2	3	20	30
Total = 24									27	
Undergraduate Diploma in Economics (Total Credit = 93) Summer Internship = 2 Credit										

Fifth Semester

S.NO	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs	Inter	Exter
									CAT	TH
1	070705001	Public Finance	Major (DSC)	4	3	1	0	4	40	60
2	070705002	Minor 5	Minor	4	2	0	4	6	40	60
3	070705003	DSE 2	Major DSE	4	3	1	0	4	40	60
4	070705004	DSE 3	Major DSE	4	3	1	0	4	40	60
5		SEC 3	SEC	2	2	0	0	2	20	30
6	070705005	Evaluation of Summer Internship		2	-	-	-	-		
Total Credit = 20								20		

Sixth Semester

S.NO	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs	Inter	Exter
									CAT	TH
1	070706001	Indian Economy	Major DSC	4	3	1	0	4	40	60
2	070706002	History of Economic Ideas	Major (DSC)	4	3	1	0	4	40	60

3	07070 6003	Data Analysis of Indian Economy-Practical	Major DSC	1	0	0	1	2	40	60
4	07070 6004	Minor 6	Minor	4	2	0	4	6	40	60
5	07070 6005	DSE 4	Major DSE	4	3	1	0	4	40	60
6		SEC 4	SEC	2	2	0	0	2	20	30
Total Credit = 19								22		

Bachelors of Arts in Economics (Total Credit = 133)

Seventh Semester

S.No	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs	Internals	External
									CAT1+ CAT2	TH
1	070707001	Research Methodology for Economics	Major DSC	4	3	1	0	4	40	60
2	070707002	International Trade & Finance	Major DSC	4	3	1	0	4	40	60
3	070707003	Minor 7	Minor	4	2	0	4	6	40	60
4	070707004	DSE 5	Major DSE	4	3	1	0	4	40	60
Total Credit = 16								18		

Eighth Semester

S.No	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs	Internal	External
									CAT1+ CAT2	TH
1	070708001	Minor 8	Minor	4	2	0	4	6	40	60
2	070708002	Dissertation/Research Project	Research Project	12	-	-	-			
Total Credit = 16								5		
Grand Total = 165										
B.A. (Hons with Research) in Economics with a Minor Data Science										

List of Minor Subjects

Data Sciences	I	Data Analytics Using SQL
	II	Data Analytics Using R
	III	Python For Data Science
	IV	Data Preprocessing and Visualization Using Python
	V	Time Series Analysis & Forecasting Using Python
	VI	Fundamental Of Machine Learning
	VII	Data-Driven Applications
	VIII	Project And Case Study

Media Studies	I	Understanding Media
	II	Media Ethics and Laws
	III	Reporting and Editing for Print
	IV	Advertising and Integrated Marketing Communication
	V	Public Relations and Corporate Communication
	VI	Media, Development, and Society
	VII	Film Appreciation and Cinema Studies
	VIII	Global Media Scenario

Education	I	Foundations of Education
	II	Educational Psychology
	III	Measurement and Evaluation of Learner
	IV	Diversity and Inclusive Education
	V	Guidance and Counseling
	VI	Applied Behaviour Analysis in Education
	VII	Educational Intervention and Teaching Strategies: Intellectual Disability
	VIII	Educational Intervention and Teaching Strategies: Learning Disability

Human Resource Management	I	Foundations in Organizational Behaviour
	II	Professional HRM Practices
	III	Psychological Assessment in Organizations
	IV	Learning and Development in Organizations
	V	Leadership and Talent Development
	VI	Counseling at Workplace
	VII	Change Management and OD Interventions
	VIII	Total Rewards Management

Foreign Trade	I	Basics of Business
	II	The Global Economy
	III	International Business Environment
	IV	Macroeconomics of open economies
	V	Global Political Economy
	VI	Growth Inequality and Conflict
	VII	Foreign Trade
	VIII	International Financial Institutions

Psychology	I	Foundations of Psychology
	II	Fundamentals of Social Psychology
	III	Developmental Psychology
	IV	Counseling and Guidance
	V	Health Psychology
	VI	Environmental Psychology
	VII	Positive Psychology
	VII	Media Psychology

FIRST SEMESTER STRUCTURE FOR B.A. (HONS. WITH RESEARCH) ECONOMICS

S.No	Course Code	Course Name	Category of Course	Credit
1	070701001	Micro Economics-I	Major (DSC)	4
2	070701002	Macro Economics-I	Major (DSC)	4
3	070701003	Mathematical Methods for Economics-I	Major DSC	4
4	070701004	Data Analysis using SQL	Minor	4
5		Constitutional Values and Fundamental Duties	VAC	2
6		Environmental Science	AEC	3
7		Cyber Sphere and Security: Global Concerns	SEC	2
	Total			23

Micro Economics-I

070701001	<u>Micro Economics-I</u>	L	T	P	C
Version 1.0		3	1	0	4
Pre-requisites/Exposure					
Co-requisites					

Course Objectives

The main objective of the course is to:

- To make the students well aware about the basic principles of microeconomic theory.
- To make the students think like an economist.
- To spread awareness among students about the various microeconomic concepts this can be applied to analyze real-life situations.
- To give the students a thorough understanding of the theories of micro economics.

Course outcome

CO1: Explain different forms of market imperfections and market failures observed in real life situations.

CO2: Describe and apply the methods for analyzing consumer behavior through demand and supply, elasticity and marginal utility.

CO3: Apply the theories of micro economics in application to individual decision maker.

CO4: Explain and illustrate perspective of individual decision making as consumers and producers.

CO5: Identify and appraise various models of how markets are organized, and the price and output decisions for maximizing profit.

CO6: Know how markets that fail to use resources efficiently create unintended effects

Syllabus

Unit-1 Basic Economic Concepts

What is microeconomics? Scope and method of economics; Equilibrium: Concept, Stability, Existence and Uniqueness of Equilibrium. Types: Static and Dynamic Equilibrium. Partial and General Equilibrium. Stability Analysis: Marshallian and Marshallian Approaches., the economic problem: scarcity and choice; the concept of opportunity cost and production possibility frontier.

Unit-2 Consumer Behavior

Utility Analysis- Cardinal Approach; Law of Diminishing Marginal Utility, law of Equi-Marginal utility, Consumer's Equilibrium, Indifference Curve: Properties; Budget constraints, Consumer equilibrium, Hicks and Slutsky income and substitution effect; Concept of consumer surplus; choice under risk and intertemporal choice.

Unit 3: **Production and Costs**

Production with one and more variable inputs; returns to scale; Economies and diseconomies of scale; Learning curve; Economies of Scope; short run and long run costs; cost curves in the short run and long run, Technology; concept of isoquants and producer equilibrium; Elasticity of substitution. Properties of Cobb -Douglas and CES production function.

Unit 4: **Market Structure**

Pricing process and equilibrium of firm and industry under perfect competition, monopoly (including discriminating monopoly and bilateral monopoly), monopolistic competition: Welfare effects of price control, price support and production quota.

Suggested readings

1. Bernheim, B., Whinston, M. (2009). *Microeconomics*. Tata McGraw-Hill.
2. Mankiw, N. (2007). *Economics: Principles and applications, 4th ed.* Cengage Learning.

MACRO ECONOMICS-I

070701002	<u>Macro Economics-I</u>	L	T	P	C
Version 1.0		3	1	0	4
Pre-requisites/Exposure					
Co-requisites					

Course Objectives

The main objective of the course is to:

- To understand the forces that help in determining macroeconomic variables.
- To determine income and employment in the economy.
- To study the theories of aggregate spending.
- To study the theory of demand and supply of money.

Course outcome

- CO1. Explain the origin of macroeconomics and preliminary concepts associated with the discipline
- CO2 Understand aggregate macroeconomic variable like savings, investment, GDP, money, inflation, and the balance of payments
- CO3. Examine various alternative theories of output and employment determination in a closed economy in the short run as well as long run,
- CO4. Apply the analytical tools formal modeling of a macro-economy.
- CO5 Apply the principle of Macroeconomics in explaining the behaviour of Macroeconomic variables at national as well as global level.
- CO6 Associate the current economic phenomenon with existing theory and put their views on contemporary economic issues.

Syllabus

Unit 1 Measurement of Macroeconomic Variables

Meaning and Importance of Macro Economics; Circular Flow of Economic activities: Two Sector, Three Sector, Four Sector Economy; Approaches to the Measurement of GDP: Income, expenditure, product or Value-added Methods, Difficulties of Estimating National Income; Concepts of Green GDP and Green Accounting

Unit 2: Determination of Income and Employment

Keynesian model of national income determination; Classical Theory of Employment - Say's Law of Market - Wage - Price Flexibility (Pigou's Version) - Saving and Investment Equality - Evaluation of the Classical Theory of Employment; Keynesian Theory of Employment;

Unit 3: **Aggregate Spending**

Theories of Consumption spending: Absolute, Relative, Permanent income and Lifecycle hypotheses; Investment Function and Theories of investment spending; Investment Multiplier-static & Dynamic

Unit 4: **Monetary Approach: Demand & Supply of Money**

Theories of Demand for Money: Quantity Theory and Keynes approach. Baumol and Tobin Contributions and Friedman's restatement of quantity theory. Derivation of IS and LM curves and their shifts and rotations and determination of General Equilibrium.

Suggested readings

1. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.
2. N. Gregory Mankiw. Macroeconomics, Worth Publishers, 7th edition, 2010.
3. Olivier Blanchard, Macroeconomics, Pearson Education, Inc., 5th edition, 2009.
4. Richard T. Froyen, Macroeconomics, Pearson Education Asia, 2nd edition, 2005.
5. Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011.
6. Errol D'Souza, Macroeconomics, Pearson Education, 2009.
7. Paul R. Krugman, Maurice Obstfeld and Marc Melitz, International Economics, Pearson Education Asia, 9th edition, 2012.

Mathematical Methods for Economics-I

070701003	<u>Mathematical Methods for Economics-I</u>	L	T	P	C
Version 1.0		3	1	0	4
Pre-requisites/Exposure					
Co-requisites					

Course Objectives

The course will provide with mathematical foundations that are necessary for further study of a variety of disciplines including postgraduate economics, statistics, computer science, and finance and data analytics. The analytical tools introduced in this course has applications wherever optimization techniques are used in business decision-making for managers and entrepreneurs alike. These tools are necessary for anyone seeking employment as an analyst in the corporate world and so will help the students in future.

Course outcome

- CO1. Understand the importance of number system and its properties.
- CO2. Apply function of one variable and its various characteristics.
- CO3. Implement optimization techniques used for maximizing profit and minimizing cost.
- CO4. Use algebraic and geometric properties of vector spaces.
- CO5. Apply mathematical techniques to economic theory in general.
- CO6. Use mathematics for research purposes.

Syllabus

Unit-1: Basic Concepts

Variables and Parameters; Sets; Functions and their graphs; Limits; Equations – simple, quadratic and simultaneous and Identities; Equations of a straight line, concept of slope; Equation and interpretation of Rectangular Hyperbola.

Unit 2: Matrices & its Economic Application

Different kinds of matrices, Matrix operations – addition, multiplication, transpose; singular matrices and matrix inversion. Fundamentals of Matrices; Determinants. Solution of a system of up to 3 equations by matrix inversion and Cramer's rule. Economic Application: Input-Output analysis – Leontief model.

Unit 3: Calculus

Series – Arithmetic and Geometric; Rate of growth and its Measurement, Present Value and its Applications. Annuities: Types, Amount, and Present Value

Differentiation: Simple Differentiation, partial and total derivative Economic Applications: Elasticity of Demand, Average and Marginal functions, partial elasticities, Homogeneous function, Euler's Theorem, Utility function, Production Function, Cobb Douglas and CES, Cost function, etc.

Unit 4: **Optimization Problem**

Maxima and Minima of Functions of one and two variables; Constrained Optimization Problem (with maximum three variables). optimization problems in costs and revenue, constrained optimization; Lagrangian Method.

Suggested readings

Sydsaeter, K., Hammond, P. (2002). *Mathematics for economic analysis*. Pearson Educational.

CyberSphere and Security: Global Concerns

	<u>CyberSphere and Security: Global Concerns</u>	L	T	P	C
Version 1.0		1	0	0	2
Pre-requisites/Exposure					
Co-requisites					

Course Objectives

To spread awareness and enlightening visions of the indiscriminate and diversified students to ensure their immediate and basic cyber safety and prevent loss due to sheer ignorance.

Course outcomes

- CO1. After studying this course, students will be able to apprehend key terms of the cyber domain and identify cyber threats.
- CO2. After studying this course, students will be able to understand cyber law concepts, intellectual property and Digital Rights Management.
- CO3. After studying this course, students will be able to diagnose and examine basic security loopholes, anomalous behavior on the internet.
- CO4. After studying this course, students will be able to understand the principles of web security.
- CO5. After studying this course, students will be able to secure and protect personal data with safe Internet usage.
- CO6. After studying this course, students will be able to assimilate approaches for incident analysis and response, risk management, and best cyber security practices.

Syllabus

Unit I: Introducing Cyber ‘Sphere’ and ‘Security’

Cyber Terminologies: CyberSphere, Cyber Security, Cyber Crime, Cyber Attack, Cyber Espionage, Cyber Warfare, Cybernetics
Cyber Security and Paradigms
Cyber Security: Objectives and Roles

Unit II: Cyber Crime and Cyber Activism: An Overview

Typologies of Cyber Crimes: Generic Cyber Crimes, Advanced Persistent Threats (APTs), Cyber Threats in Mobile Technology, Cloud Computing, and BYOD
Cyber Crime Identification, Risk Assessment, Management and Control

Unit III: Cyber Policies and Cyber Law

Cyber Policies and Cyber Law: Dimensions, Determinants, Dilemmas
Existing Cyber Policies and Must Follow-Up Actions
Grey Areas in Cyber Laws

Unit IV: Security Tools and Usage

Knowledge and Identification of Security Tools
Cyber Security Aspects
Cyber Security Toolkits

Unit V: Cyber Security: Case Studies

Government Institutions
Banks and Financial Institutions, Commercial Websites, Point of Sale issues, and
Online Payment
Real-Time Cases

Suggested Readings:

1. Bertrand Venard (2019). 'Cyber Security: The New Art of War', Lecture delivered at Developing Countries Research Centre [dcrc], the University of Delhi, 1 April 2019.
2. Bertrand Venard (2019). 'The Determinants of Cybersecurity Behaviours: Qualitative Research Among French Students' in C. Onwubiko, X. Bellekens, A.Erola, M. Jaatun and C. Nogueira (eds.), Proceedings of the Cyber Science 2019: Cyber Situational Awareness for Predictive Insight and Deep Learning. UK: University of Oxford.
3. Bertrand Venard (2019). Cybersecurity Among Students. UK: Wolfson College, University of Oxford.
4. Bertrand Venard (2019). Cyber Aggressions in the XXIst Century: Equation of a Crisis. UK: University of Oxford.
5. Cristopher Hadnagy (2018). Social Engineering: The Science of Human Hacking, 2nd Edition. New York: Wiley
6. John Erickson (2008). The Art of Exploitation (2nd Edition). San Francisco: No Starch Press.
7. Kevin Mitnick and Robert Vamosi (2017). The Art of Invincibility. Boston: Little, Brown and Company.
8. Kevin Mitnick (2012). The Ghost in the Wires: My Adventures as the World's Most
a. Wanted Hacker. New York: Back Bay Books.
9. Yogesh Atal and Sunil K Choudhary (2013). Combating Corruption: The Indian Case. Hyderabad and New Delhi: Orient Blackswan.

Second Semester

S.No	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs.
1	070702001	Micro Economics- II	Major DSC	4	3	1	0	4
2	070702002	Macro Economics- II	Major (DSC)	4	3	1	0	4
3	070702003	Mathematical Methods for Economics-II	Major DSC	4	3	1	0	4
4	070702004	Data Analysis using R	Minor	4	2	0	4	6
5		VAC 2 (Extension & Outreach Based)	VAC	2	-	-	-	-
6		1 from the pool of the University	OE	3	3	0	0	3
7		AEC-2	AEC	3	3	0	0	3
Total Credit = 24 Undergraduate Certificate in Economics (Total Credit =47) Summer Internship (2 Credit)								24

Micro Economics-II

070702001	Micro Economics-II	L	T	P	C
Version 1.0		3	1	0	4
Pre-requisites/Exposure	Micro Economics -I				
Co-requisites					

Course Objectives

The main objective of the course is to:

1. Understand Business Costs and Pricing. Another common objective in microeconomics is understanding the correlation between business costs, pricing, and profit.
2. To introduce the students to different forms of market imperfections and market failures, input demand, factor incomes, and international trade
3. Illustrate how microeconomic concepts can be applied to analyze real-life situations.
4. To give students a thorough understanding of theories of welfare economics and application to individual decision-maker

Course outcome

CO1: Understand the theory of distribution of income and factor

payments. CO2: Explain concepts and theories of welfare economics.

CO3: Analyse market equilibrium conditions and economic efficiency.

CO4: Explain different forms of market imperfections and market failures observed in real-life situations.

CO5 Describe the welfare economics approach to understanding decision-making.

CO6 Define and explain long-run costs, economies of scale, diseconomies of scale, and constant returns to scale.

Syllabus

Unit 1: Market Structure & Game Theory

Oligopoly: non-collusive models - Cournot, Bertrand, kinked demand model; collusive models - joint profit maximizing, market sharing and leadership cartels; Theory of games - two-person, zero-sum game, pure and mixed strategy, saddle point solution.

Unit 2: Theories of Distribution

Theory of wage determination under a competitive market, with monopolistic power in the product market, monopsonist power in the factor market, bilateral monopoly in the factor market, and monopoly in the factor market. Product exhaustion problem. Neoclassical theory of rent, quasi-rent, interest, and profit.

Unit-3: **General equilibrium, efficiency, and welfare**

Introduction to concept of Welfare, Equilibrium, and efficiency under pure exchange and production; overall efficiency and welfare economics, Pareto Optimality, Utility frontier, Partial and General equilibrium Conditions. Social welfare functions, A.K. Sen Views on Welfare

Unit 4: **Market Failure**

Concepts of Market Failure: Externalities; public goods, Markets with Asymmetric Information: Adverse Selection and Moral Hazards, Common Property Resources/Rights, Case of Monopoly.

Suggested readings

1. Bernheim, B., Whinston, M. (2009). *Microeconomics*. Tata McGraw-Hill.
2. Mankiw, N. (2007). *Economics: Principles and applications, 4th ed.* Cengage Learning.
3. Hal R. Varian, Intermediate Microeconomics, a Modern Approach, W.W. Norton and Company/Affiliated East-West Press (India), 8th edition, 2010. The workbook by Varian and Bergstrom may be used for problems.
4. C. Snyder and W. Nicholson, Fundamentals of Microeconomics, CengageLearning (India), 2010.
5. B. Douglas Bernheim and Michael D. Whinston, Microeconomics, Tata McGraw-Hill (India), 2009.

Macro Economics- II

070702002	MACRO ECONOMICS II	L	T	P	C
Version 1.0		3	1	0	4
Pre-requisites/Exposure	MACRO ECONOMICS I				
Co-requisites	--				

Course Objectives

The main objective of the course is to:

- To understand the forces that help in determining macroeconomic variables.
- To understand the causes of business cycles.
- To analyze how changes in policy are expected to impact the economy.

Course outcome

CO1: Understand of aggregate macroeconomic variables and determinants of macroeconomic conditions.

CO2. Integrate the role of fiscal and monetary policies in regulating economy.

CO3. Apply the principle of Macroeconomics in explaining the behavior of Macroeconomic variables at national as well as global level.

CO4. Associate the current economic phenomenon with existing theory and put their views on contemporary economic issues.

CO5 Understand the theory and causes of business cycles.

CO6 Understand equilibrium in closed and open economy.

Syllabus

Unit 1: Inflation & Unemployment

Inflation; Meaning, types, Causes and effects of inflation, theories of inflation; Inflation and unemployment: concept of stagflation, Phillips's curve in short and long run.

Unit 2: Monetary and Fiscal Policy

Fiscal Policy: instruments of fiscal policy, role of fiscal policy in economic development, Fiscal policy in inflation and recession; monetary policy Active or passive; monetary policy objectives and targets, instruments of monetary policy and recent reforms and changes in monetary policy in India.

Unit 3: **Business Cycle and Growth Models**

Trade cycle: Introduction, Phases of trade cycle, theories of trade cycle: Keynes and Samuelson;
Growth Models: Harrod-Domar Growth Model, Neo-classical growth model.

Unit 4: **Balance of Payment and Open Economy Adjustment**

Balance of payments disequilibrium and its consequences. Balance of payments adjustment policies under fixed and flexible exchange rates; exchange rate determination; purchasing power parity; Mundell-Fleming Model.

Suggested readings

1. Abel, A., Bernanke, B. (2016). *Macroeconomics, 9th ed.* Pearson Education.
2. Blanchard, O. (2018). *Macroeconomics, 7th ed.* Pearson Education.
3. Dornbusch, R., Fischer, S., Startz, R. (2018). *Macroeconomics, 12th ed.* McGraw-Hill.
4. Jones, C. (2016). *Macroeconomics, 4th ed.* W. W. Norton.
5. Mankiw, N. (2016). *Macroeconomics, 9th ed.* Worth Publishers

Mathematical Methods for Economics-II

070702003	MATHEMATICAL METHODS FOR ECONOMICS II	L	T	P	C
Version 1.0		3	1	-	4
Pre-requisites/Exposure	--				
Co-requisites	--				

Course Objectives

This course focuses on the mathematical methods and models that are required to understand current economics and to investigate economic models. Topics may include Multivariate optimization, linear programming, Integration, differential equations, and difference equations and applications in economic models.

Course outcome

CO1: To understand the mathematical concepts and methods used by professional economists.

CO2: To analyze economic models by using formal mathematical methods.

CO3: To Construct LP models for various types of problems and Solve LP models by using a graphical method.

CO4: To understand the economic applications by using Differential equations and difference equation

CO5 Demonstrate knowledge and understanding of the underlying mathematical principles. CO6

Use mathematics for research and innovation.

Syllabus

Unit-1 (Integration)

Concept of integration, simple rules of integration, application to consumer's surplus and producer's surplus.

Unit 2: (Differential Equation)

Differential Equation: Introduction; Solution: Variable separable case, Homogeneous case, Standard linear differential equation, Bernoulli's form, Exact equation; Solution of linear differential equation with constant coefficients; Simple economic applications

Unit 3: **Difference equation**

Difference equation – basic concepts, solution of first and second order linear difference equation with constant term and coefficient.

Economic Application: Cobweb Model, Lagged income determination model, Harrod growth model, Samuelson multiplier-accelerator model

Unit 4: **Linear Programming**

Linear Programming – Relevance and basic concepts, Graphic, simplex and dual solution. Economic interpretation of duality

Suggested readings

Sydsaeter, K., Hammond, P. (2002). *Mathematics for economic analysis*. Pearson Educational.

