ADAMAS UNIVERSITY

SCHOOL OF BUSINESS & ECONOMICS

DEPARTMENT OF ECONOMICS AND COMMERCE

B.A. (HONS) ECONOMICS PROGRAMME

(2021-24)

ADAMAS UNIVERSITY, KOLKATA
SCHOOL OF BUSINESS & ECONOMICS
DEPARTMENT OF ECONOMICS AND COMMERCE

VISION OF THE UNIVERSITY

To be an internationally recognized university through excellence in inter-disciplinary education, research and innovation, preparing socially responsible well-grounded individuals contributing to nation building.

MISSION STATEMENTS OF THE UNIVERSITY

M.S 01: Improve employability through futuristic curriculum and progressive pedagogy with cutting-edge technology

M.S 02: Foster outcomes based education system for continuous improvement in education, research and all allied activities

M.S 03: Instill the notion of lifelong learning through culture of research and innovation

M.S 04: Collaborate with industries, research centers and professional bodies to stay relevant and up-to-date

M.S 05: Inculcate ethical principles and develop understanding of environmental and social realities

CHANCELLOR / VICE CHANCELLOR

ADAMAS UNIVERSITY, KOLKATA
SCHOOL OF BUSINESS & ECONOMICS
DEPARTMENT OF ECONOMICS AND COMMERCE

VISION OF THE SCHOOL

To be a new age school maintaining international standards of industry-relevant interdisciplinary education and research in the field of business, commerce and economics and development of professionals adapt at leveraging technology & conscious of society & employment.

MISSION STATEMENTS OF THE SCHOOL

M.S 01: Focused on outcome based learning curriculum for the students embarking on a journey of intellectual, personal and professional growth.

M.S 02: Integrate theoretical knowledge to build wider & sustainable applications embracing diversity

M.S 03: Incorporating trans-disciplinary learning approach through research in various allied disciplines, including emerging areas.

M.S 04: Aim for all round development of students using modern pedagogical tools & techniques to create industry ready graduates, reflective lifelong learners & conscious global citizens.

M.S 05: Encourage students to inculcate entrepreneurial spirits and traits & excel at creation of national economic value.

DEAN / SCHOOL CONCERNED

ADAMAS UNIVERSITY, KOLKATA
SCHOOL OF BUSINESS & ECONOMICS
DEPARTMENT OF ECONOMICS AND COMMERCE

VISION OF THE DEPARTMENT

To emerge as world class Centre of advanced learning in Economics through promulgating interdisciplinary and research driven courses. While dissemination of knowledge of the subject to address real life issues in business and other spheres of life is of focus, building socially responsible citizens through various community service and capacity building courses is interwoven throughout the learning.

MISSION STATEMENTS OF THE DEPARTMENT

M.S 01: Improve employability of our students through futuristic curriculum and progressive pedagogy through regular interaction with 'people at practice' from industry, NGOs, think tanks.

M.S 02: Adopt Outcome Based Education (OBE) in developing the curricula and syllabi to ensure the goal oriented training and measuring its attainment

M.S 03: Prepare the mind to think in an innovative way and to look at any practical problem in real life so that the learners develop a research orientation

M.S 04: Amalgamation of 'theory with practice' through collaboration with industry, think tanks, policy research centres, etc. in terms of course design, delivery, and project training.

M.S 05: Instill morale, social ethics, and professional behavior to get back to society as a 'socially responsible citizen' is the motto to help a greater agenda of 'nation building'.

HOD **DEAN / SCHOOL CONCERNED**

ADAMAS UNIVERSITY, KOLKATA
SCHOOL OF BUSINESS & ECONOMICS
DEPARTMENT OF ECONOMICS AMD COMMERCE

NAME OF THE PROGRAMME:

B.A (HONS) ECONOMICS

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

PEO 01: To prepare graduates for a career in the field of Economics focusing on need of the industry domestically and globally

PEO 02: To equip them with knowledge and skills through interdisciplinary, innovative and flexible learning pedagogy

PEO 03: To inculcate values and ethics and prepare socially responsible graduates

PEO 04: To embed lifelong learning skills and professional traits among the graduates

HOD **DEAN / SCHOOL CONCERNED**

ADAMAS UNIVERSITY, KOLKATA
SCHOOL OF BUSINESS & ECONOMICS

NAME OF THE PROGRAMME:
B.A (HONS) ECONOMICS

GRADUATE ATTRIBUTE / PROGRAMME OUTCOMES (PO)

At the end of the Programme the students will be able to:

GA 01 / PO 01: Domain specific knowledge and skills/ Acquire knowledge of core economic theories and blend it with broader business domains including finance, marketing, entrepreneurship, international business and market research

GA 02 / PO 02: Problem Analysis and Critical thinking / Develop skills necessary to analyze business and economic data, think critically on alternatives and propose viable solutions

GA 03 / PO 03: Modern IT Tools / Become proficient in using spreadsheet, word and PowerPoint for data analysis, documentation and presenting information in meaningful manner

GA 04 / PO 04: Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society

GA 05 / PO 05: Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns

GA 06 / PO 06: Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society

GA 07 / PO 07: Leadership and Team work/ Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.

GA 08 / PO 08: Communication / Develop verbal and non-verbal communication skills for successful career in Industry, Business and Entrepreneurship

HOD **DEAN / SCHOOL CONCERNED**

ADAMAS UNIVERSITY, KOLKATA
SCHOOL OF BUSINESS & ECONOMICS
DEPARTMENT OF ECONOMICS AND COMMERCE

NAME OF THE PROGRAMME:

B.A (HONS) ECONOMICS

PROGRAMME SPECIFIC OUTCOMES (PSO)

At the end of the Programme the students will be able to:

PSO 01: Understand and comprehend theories in microeconomics and macroeconomics at introductory level

PSO 02: Infer on the fundamentals of accounting and financial management and appreciate the economic perspective embedded in area of finance

PSO 03: Relate the importance of human resources in context of an organization and society

PSO 04: Develop a strong acumen towards entrepreneurship skills

PSO 05: Make use of fundamental of marketing research to analyze the domestic and international businesses markets

PSO 06: Acquaint with basic statistical and mathematical methods for analysis of data

PSO 07: Appreciate the evolution and historical developments in light of major schools of thoughts in economics

PSO 08: Apprehend the variety of economic issues pertaining to Indian economy in particular and global economy in general

PSO 09: Demonstrate the knowledge of money, financial markets and public finance and classify the role of fiscal and monetary policies in balancing the economy

PSO 10: Outline the issues in development economics with aid of theories and model and discuss about the issues of poverty and inequalities

PSO 11: Identify the core ingredients of international economics and explore the policy issues in an open economy setting

HOD **DEAN / SCHOOL CONCERNED**

ADAMAS UNIVERSITY

SCHOOL OF BUSINESS & ECONOMICS

DEPARTMENT OF ECONOMICS AND COMMERCE

THREE-YEAR B.A. (HONS) ECONOMICS DEGREE PROGRAMME
COURSE STRUCTURE AND SYLLABUS
(2021-2024)

SCHOOL OF BUSINESS AND ECONOMICS								
UNDERGRAGUATE COURSE STRUCTURE								
B.A (HONS) ECONOMICS								
BATCH 2021-24								
SEMESTER I								
S.No	**Type of Course**	**Code**	**Title of the Course**	**Contact Hours Per Week**				**Remarks**
				L	**T**	**P**	**C**	
1	CC	ECO11028	Principles of Economics	3	1	0	4	
2	CC	FAC11003	Principles of Accounting	3	1	0	4	Commerce
3	CC	ECO11005	History of Economic Thoughts	3	1	0	4	
4	SEC	ENG11049	Communicative English	2	0	0	2	
5	GE		Generic Elective I	5	1	0	6	
6	VAC	DGS11001	Design Thinking	2	0	0	2	
Semester Credits							**22**	**No Minor**
SEMESTER II								
7	CC	ECO11001	Microeconomics	3	1	0	4	
8	CC	ECO11031	Macroeconomics	3	1	0	4	
9	CC	ECO11007	Basic Statistics	3	1	0	4	
10	SEC	IST11002	Spreadsheet & its application in Business	0	0	4	2	Management
11	VAC	EIC11001	Venture Ideation	2	0	0	2	
12	GE		Generic Elective II	5	1	0	6	
MINOR FROM OTHER SCHOOLS / DEPARTMENTS							**6**	**Optional**
Semester Credits							**22**	**28 Including Minor**
SEMESTER III								
13	CC	OBH11012	Human Resource Management	3	1	0	4	Management
14	CC	FAC11045	Financial Management	3	1	0	4	Commerce
15	CC	ECO11011	Indian Economy	3	1	0	4	
16	CC	MTH11514	Business Mathematics	3	1	0	4	Management
17	GE		General Elective III	5	1	0	6	
18	VAC	SOC14100	Community Service	0	0	2	1	
19	VAC	IDP14001	IDP	0	0	6	3	
MINOR FROM OTHER SCHOOLS / DEPARTMENTS							**6**	**Optional**

Semester Credits							**26**	**34 Including Minor**
SEMESTER IV								
20	CC	ECO11012	Developmental Economics	3	1	0	4	
21	CC	EIC11010	Entrepreneurship Development	3	1	0	4	Management
22	CC	ECO11014	Money, Banking and Financial Markets	3	1	0	4	
23	AECC	EVS11113	Environmental Studies	2	0	0	2	
24	GE		General Elective IV	5	1	0	6	
25	VAC	PSG11021	Human Values and Professional Ethics	2	0	0	2	
MINOR FROM OTHER SCHOOLS / DEPARTMENTS							**6**	**Optional**
Semester Credits							**22**	**28 Including Minor**
SEMESTER V								
26	CC	**ECO11008**	**Intermediate Microeconomics**	**3**	**1**	**0**	**4**	
27	CC	**ECO11009**	**Intermediate Macroeconomics**	**3**	**1**	**0**	**4**	
28	DSE	ECO11029	**DSE I: Mathematics for Economics**	3	1	0	4	
29	DSE	ECO11015	**DSE II: Basic Econometrics**	3	1	0	4	
30	DSE	ECO11019	**DSE III: Public Economics**	3	1	0	4	
31	INT	ECO14017	Summer Internship	0	0	12	6	
MINOR FROM OTHER SCHOOLS / DEPARTMENTS							**2**	**Optional**
Semester Credits							**26**	**28 Including Minor**
SEMESTER VI								
32	CC	ECO11016	**International Economics**	3	1	0	4	
33	CC	ECO11010	**Mathematical Economics**	3	1	0	4	
34	DSE	ECO11021/11041	**DSE IV: Labour Economics/Evolutionary Political Economy**	3	1	0	4	
35	DSE	ECO11022/11024	**DSE V: Resource and Environmental Economics/Behavioral Economics**	3	1	0	4	
36	DSE		**DSE VI: Project**	3	1	0	4	
								Optional

Semester Credits	**20**	**20 Including Minor**
Total Credits of the Program	**138**	**160 With Minor**

List of Electives*

NA	DSE	ECO11029	Mathematics for Economics	3	1	0	4	
NA	DSE	ECO11015	Basic Econometrics	3	1	1	4	
NA	DSE	ECO11019	Public Economics	3	1	0	4	
NA	DSE	ECO11021	Labour Economics	3	1	0	4	
NA	DSE	ECO11022	Resource and Environmental Economics	3	1	0	4	
NA	DSE	ECO11024	Behavioral Economics	3	1	0	4	
NA	DSE	ECO11041	Evolutionary Political Economy	3	1	0	4	

Semester I

Course Objective:

Economic principles guide us to think like an economist. Business on the same side encounter a

ECO11028	Principles of Economics	L	T	P	C
	Contact Hours – 60	3	1	0	4
Pre-requisites/Exposure	NA				
Co-requisites	None				

number of situation where this economic intuition and thinking may help to find viable solution and answers to the questions pertaining to a particular business problem. These problems may come from variety of contexts, for example, from micro operations of the business unit such as production and consumer demand or from macro environment such as a steep rise in overall price level in the economy. Therefore, in order to understand the reasons of such business problems and discover their solutions, a fundamental knowledge of economic principles is required. This course intends to give a glimpse of core principles of economics (micro principles, macro principles and some basic ideas of international economics) such as main problems of an economic system, fundamentals of demand and supply, consumer and producer surplus, concepts related national income etc. to the students. The course will be taught by lectures on core concepts supplemented with numerical analysis, case studies and small projects presentations by students.

Course Outcomes:

On completion of the course it is expected that students will be able to:
CO 1 Demonstrate the understanding of main principles of economics as applied to commerce and business.
CO 2 Apply economic reasoning to the analysis of questions pertaining to business immediately.
CO 3 Demonstrate the ability to interpret data in view of economic theories and evidences.

Course Content:

Unit I: Introduction to the Principles 9 hrs
How people make decisions: Trade-offs; the cost of something is what you give up to get it; rational people think at margins; people respond to incentives
How people interact: Trade can make everyone better off; Markets are good way to organise economic activity; government can sometimes improve market outcome
How economy as a whole works: a country's standard of living depends on its ability to produce goods and services; price rise when government prints too much money; Society face a short run trade-off between inflation and unemployment.
The economists as scientists: the scientific models; role of assumptions; economic models; a few basic economic models; micro and macro economics

Unit II: The Market forces of Demand and Supply 9 hrs
Market and competition
The demand curve: The relationship between price and quantity demanded
Market demand vs individual demand

Shifts in demand
The supply curve: relationship between price and quantity supplied
Market supply vs individual supply
Shifts in supply
Supply and demand together
Equilibrium
Three steps to analysing change in equilibrium

Unit III: Consumer, Producers and Efficiency of Markets 9 hrs
Consumer surplus
Willingness to pay; measuring consumer surplus
Producer surplus
Costs and willingness to sell: measuring producer surplus
Market efficiency

Unit IV: Behaviour of Economy as a Whole 9 hrs
The economy's income and expenditure
The measurement of GDP (Gross Domestic Product)
Defining GDP: Precautions to be taken
The components of GDP
Consumption
Investment
Government Purchases
Net Exports
Real vs Nominal GDP
The GDP deflator
Measuring cost of living: The CPI and WPI
GDP deflator vs Price index
Unemployment: Basic concepts

Unit V: Interdependence and Gains from Trade 9 hrs
A parable of Modern Economy: Globalisation of Economic Activity
Production possibilities
Specialisation and Gains
Comparative Advantage: Driving force of specialisation
Absolute Advantage
Opportunity cost and comparative advantage
Comparative advantage add trade

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation

- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment/Quiz/Project/Presentation/ Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

Text and Reference:

Core Text:

Mankiw Gergory N (2007). "*Principles of Economics".* India edition, Cengage learning, New Delhi.

Reference Readings:

Frank Robert H and Bernanke Ben S (2007), "*Principles of Economics".* Third edition. Tata McGrawhill Publishing limited, New Delhi.

Samuelson Paul A and Nordhaus William D (2005). *"Economics"*. Eighteenth edition. Tata McGrawhill Publishing limited, New Delhi.

Joseph Nellis and David Parker (2006). "*Principles of Business Economics*" 2nd Edition, Pearson paperback edition.

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Demonstrate the understanding of main principles of economics as applied to commerce and business.	**PO1, PO2**
CO2	Apply economic reasoning to the analysis of questions pertaining to business immediately.	**PO1, PO4**
CO3	Demonstrate the ability to interpret data in view of economic theories and evidences.	**PO3**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO11028	Principles of Economics	3	3	3	3				

1=weakly mapped
2= moderately mapped
3=strongly mapped

FAC11003	Principles of Accounting I	L	T	P	C
Version 1.0	Contact Hours – 60	3	1	0	4
Pre-requisites/Exposure	Basic knowledge of accounting				
Co-requisites	--				

Course Objectives:

The objective of this course is to introduce problems of financial accounting such as measuring and reporting issues related to assets and liabilities and preparing the financial statements. Students are expected to gain the ability of using accounting information as a tool in applying solutions for managerial problems, evaluating the financial performance, and interpreting the financial structure.

Course Outcomes

On completion of this course, the students will be able to:

CO1: State the uses and users of accounting information.

CO2: Explain and apply accounting concepts, principles and conventions.

CO3: Record basic accounting transactions and prepare annual financial statements.

CO4: Analyse, interpret and communicate the information contained in basic financial statements and explain the limitations of such statements.

Course Description

This course enables the students to learn the basics of financial accounting.

Course Structure

Unit I: (8 L)

Meaning And Scope of Accounting- Introduction, Meaning of Accounting, Objectives of Accounting, Book-Keeping, Distinction Between Book-Keeping and Accounting, Sub-Fields of Accounting, Users of Accounting Information, Relationship of Accounting with Other Disciplines, Limitations of Accounting, Use of Mathematics in Accounting, Accounting Concepts, Principles and Conventions.

Unit II: (5 L)

Basic Accounting Procedures in Journal Entries, Accounting Equation Approach, Traditional Approach, Ledgers, Trial Balance.

Unit III: (5 L)

Subsidiary Books - Other Than Cash Book, Cash Book, Capital and Revenue Expenditures, Capital and Revenue Receipts, Contingent Assets and Contingent Liabilities.

Unit IV: (5 L)

Rectification of Errors, Basis of Inventory Valuation and Record Keeping, Average Due Date and Account Current.

Unit V: (10 L)

Bank Reconciliation Statement, Depreciation Accounting, Consignment and Joint Venture.

Unit VI: **(12 L)**

Preparation Of Final Accounts Of Sole Proprietors, Final Accounts Of Manufacturing Entities, Accounting Of Non-Profit Organisations, Preparation Of Receipts And Payments Account, Income And Expenditure Account And Balance Sheet.

Suggested Readings:

1. Sukla, Grewal, Gupta: Advanced Accountancy, Vol. I, S. Chand.
2. Sehgal & Sehgal, Advanced Accountancy, Vol. I, Taxman Publication
3. Hanif & Mukherjee, Financial Accounting, TMH

Modes of Examination: Assignment/Quiz/Project/Presentation/Written Exam

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

Relationship between the Course Outcomes (COs) and Program Outcomes (POs) / Program Specific Outcomes (PSOs)

Mapping between COs and POs/PSOs		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	State the uses and users of accounting information.	**PO1, PO2, PO4,**
CO2	Explain and apply accounting concepts, principles and conventions.	**PO2, PO3, PO4,**
CO3	Record basic accounting transactions and prepare annual financial statements.	**PO1, PO2,PO4,**
CO4	Analyse, interpret and communicate the information contained in basic financial statements and explain the limitations of such statements.	**PO1, PO2, PO4,**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
FAC11003	Principles of Accounting	3	3	-	3		-		

1=weakly mapped
2= moderately mapped
3=strongly mapped

ECO11005	History of Economic Thoughts	L	T	P	C
	Contact Hours – 60	3	1	0	4
Pre-requisites/Exposure	10+2 passed from any recognized Board or equivalent				
Co-requisites	--				

Course Objective:

The core objective is to increase the student's understanding of and appreciation of the development, progression, and regression of human understanding of how humans do and should act in "the ordinary business of life." Beginning with ancient civilizations we will progress historically (as far as we are able) to the present day, taking a broad view of what constitutes "economic thought," (e.g., a mixture of institutional, philosophical, policy- oriented, and "purely" theoretical) put into the general historical context of human affairs (political, religious, social, and scientific), noting major ideas and thinkers, emphasizing some thinkers more than is common, while sometimes "going off the beaten track."

Course Outcomes:

On completion of the course it is expected that students will be able to:
CO1: understand where modern economics came from
CO2: understand the forces governing the development of economic theory and policy
CO3: know about and evaluate the different questions asked by economists and underlying philosophy behind it

Course Content:

Unit I: Introduction and Origins 8 hrs
Course Introduction – Why Study History of Economic Thought?
A Very Brief Introduction to Epistemology, Methodology and the Philosophy of Science
Economic Thought in Ancient Civilizations: India
Mercantilism and Cameralism
Cantillon, Turgot and the Physiocrats

Unit II: The British School and Marx 8 hrs
British Economics: Setting the Stage for Smith
Adam Smith
British Classical School (Ricardo, Mill, Bentham and Mill)
British Anti-Ricardians
Karl Marx

Unit III: Towards Developments 8 hrs
Pre-Marginalism (French, German, and Italian contributions)

The Marginal Revolution: Jevons, Menger, and Walras De-homogenized
Alfred Marshall and Neo-Classicalism
Capital Theory
Wicksell, Fisher and the Development of the Quantity Theory

Unit IV: Keynes and After 10 hrs
Mises and Hayek: On Socialism and Business Cycles
Keynes and the "Keynesian Revolution"
Friedman and the New Chicago School
Public Choice and Constitutional Economics
Competition and Knowledge: Perfect, Imperfect and Rivalrous
The Rise of Mathematics in Economics

Unit V: The Philosophy of Economics 11 hrs
Philosophy and Methodology
Causality in Philosophy (Hume's Challenge)
Inductivism and Deductivism (Mill, Methodenstreit, Hausman)
Models and Scientific Explanation (Vienna Circle and Logical Positivism)
Beyond Positivism (Caldwell's Pluralism)
Issues and debates within Economics
Rationality in Economics
Economics and Psychology - Neuroeconomics/Experimental Economics
Value Judgements in Economics
Rationality and Efficiency in Markets
Summing Up: Is Economics a Science?

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model

- Enriched Virtual Model

Modes of Examination: Assignment/Quiz/Project/Presentation/ Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

Text and Reference:

Core Text

The Ordinary Business of Life by Roger Backhouse.

A Reader, edited by Steven G. Medema and Warren J. Samuels, and

A History of Economic Thought: The LSE Lectures, by Lionel Robbins.

Pheby, J. (1988) Methodology and Economics: a Critical Introduction, Palgrave MacMillan. (A concise and well written introduction to the main topics of the module, though a bit dated)

Boumans, M. and J. B. Davis (2010) Economic Methodology, Understanding Economics as a Science, Palgrave MacMillan. (Less systematic than Pheby but more updated)

Blaug, M. (1980/1992) The Methodology of Economics Cambridge University Press (A Classic discussion, very well written, with a clear perspective.)

Reference Readings

Hausman, D. ed (2008) The Philosophy of Economics: An Anthology Cambridge University Press (includes a selection of basic readings, useful for the essay)

Caldwell, B. J (1994) Beyond Positivism, Economic Methodology in the Twentieth Century, Routledge (critical analsysis of Popperian methodology in Economics. It introduces to a pluralistic approach in economic methodology)

Kincaid, H. and Ross, D. (2009) The Oxford Handbook of Philosophy of Economics, Oxford University Press. (Very useful for a first orientation into the basic categories introduced in this module)

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and Pos		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	. CO1: understand where modern economics came from	**PO1, PO2**
CO2	CO2: understand the forces governing the development of economic theory and policy	**PO1, PO8**
CO3	CO3: know about and evaluate the different questions asked by economists and underlying philosophy behind it	**PO1, PO2, PO8**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO11005	History of Economic Thoughts	3	3						3

1=weakly mapped
2= moderately mapped
3=strongly mapped

ENG11049	**Communicative English**	L	T	P	C
Version 1.0	Contact Hours – 30	2	0	0	2
Pre-requisites/Exposure	Basic Knowledge of English Language				
Co-requisites	-				

Course Objectives

1. To help the second language learners develop the ability to understand spoken language.
2. To enable students communicate with clarity and precision at workplace.
3. To give the students a perspective to appreciate life in its variables by exposing them to comprehension texts; and also to enrich their word power.
4. To enable students acquire structure and written expression required for their profession.

Course Outcomes

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

CO1. **Define** communication processes and to know the practical implications and its challenges at the work place.
CO2. **Understand** the practical uses of English grammar for developing writing skills and their correct and unambiguous use for different formats of business communication like reports, letters, CVs and other technical writings
CO3. **Develop** fluency in speaking English in order to carry out effective professional communication.

Course Description

English is an integral part of life. Communication is a process of exchanging ideas, messages, information etc. through verbal or nonverbal communication. In this course, the focus will be on improving LSRW skills, i.e. listening, speaking, reading and writing. Students will learn how to communicate effectively though prescribed syllabus as well as through Pearson Global English solutions. Classroom activities will be designed to encourage students to play an active role in the construction of their own knowledge and in the design of their own learning strategies. We will combine traditional lectures with other active teaching methodologies, such as group discussions, cooperative group solving problems, analysis of video scenes and debates. Class participation is a fundamental aspect of this course. Students will be encouraged to actively take part in all group activities and to give an oral group presentation. Students will be expected to interact with media resources, such as, web sites, videos, DVDs, and newspapers etc.

Course Content

Unit I: Communication Skills [10 lecture hours]

Communication Skills- Process and importance of communication, Communication cycle; Objectives and Principles of communication; Barriers to communication; Interpersonal Communication Skills at Work and Study

Unit II: Grammar and Writing Skills [10 lecture hours]

Grammar: Voice Change, Prepositions, Conjunctions, Articles, Direct and Indirect Speech, Correction of Sentences

Writing skills: Business letters (types and format), CV and Application Letters, Composition: Essays and Précis, Business Reports

Unit III: Speaking Skills [10 lecture hours]

Speaking (basics of pronunciation), Group Discussion, Presentation skills, Modulation and Tone
How to face an interview: frequently asked questions, body language and promptness

Text Books

T1. T1 Mishra. B, Sharma. S (2011) Communication Skills for Engineers and Scientists. PHI Learning Pvt. Ltd. ISBN: 8120337190.
T2. Chaturvedi P. D, Chaturvedi M. (2011) Business Communication: Concepts, Cases and Applications. Pearson Education India. ISBN: 8131718727.
T3. Greenbaum. Sidney. College Grammar of English. Longman Publishers. ISBN: 9780582285972.

Reference Books

R1. Pal, Rajendra and Korlahalli, J.S. (2011) Essentials of Business Communication. Sultan Chand & Sons. ISBN: 9788180547294.
R2. Kaul, Asha. (2014) Effective Business Communication.PHI Learning Pvt. Ltd. ISBN: 9788120338487.
R3. Murphy, R. (2007) Essential English Grammar, CUP. ISBN: 8175960299.
R4. C. Muralikrishna and S. Mishra (2011) Communication Skills for Engineers, Pearson education. ISBN: 9788131733844.
R5. Hamp-Lyons and Heasely, B . *Study Writing; A Course in Written English. For Academic and Professional Purposes*, Cambridge Univ. Press, 2006.
1. Wren and Martin. *High School Grammar And Composition.* S. Chand, 1995.

Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination
Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	30	20	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and Pos		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	**Define** communication processes and to know the practical implications and its challenges at the work place.	**PO1, PO7**
CO2	**Understand** the practical uses of English grammar and to use grammar correctly and unambiguously	**PO1, PO7**
CO3	**Develop** fluency in speaking English in order to carry out effective professional communication.	**PO7**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ENG11049	Communicative English	2	-	-	-	-	-	3	-

1=weakly mapped
2= moderately mapped
3=strongly mapped

MTH11508	Elective Mathematics-I	L	T	P	C
Version 1.0	Contact Hours – 75	5	1	0	6
Pre-requisites/Exposure	12^{th} level Mathematics				
Co-requisites	-				

Course Objectives

1. To acquire the knowledge of Numbers, Set and Complex numbers by modern approach.
2. To enable the problem-solving ability of a student.
3. To give the students a perspective to understand the background theory of Mathematics.
4. To grow the logical thinking of a student.

Course Outcomes:

After completing this course, a student will,

CO1 **Recall** the knowledge to classify numbers into different number sets.

CO2 **Develop** a modern approach to the treatment of the theory of Integers and Complex numbers

CO3 **Relate** the fundamental knowledge of limit, continuity and derivatives of different types of function.

CO4 **Illustrate** origins and applications of differential equations. Describe what Solutions of Differential Equations mean.

CO5 **Utilize** the knowledge of group theory with binary operations, properties and learn some special groups.

CO6 **Construct** double and triple integrals and its different applications.

CO7 **Make** use of the matrix calculus in solving a system of linear algebraic equations using multiple methods including Gaussian elimination and Matrix inversion methods.

Course Description:

Now a days Mathematics has become an integral part of all technologies and science. Therefore, without it, we will be unable to proceed for any development. All student should have some idea and logical mind set and mathematics made the job easy. In this course, various different aspects of mathematical parts will be discussed which help the student to understand different branches of mathematics. Apart from classroom activities, various assignments will be provided to the students. Through these, they can understand the concepts of their respective subjects also and probably find a relation of their subject with mathematics.

Course Content

Unit I **[15 hours]**

Complex numbers: De-Moivre's theorem and its applications, direct and inverse circular and hyperbolic functions, logarithm of a complex number, expansion of trigonometrical functions,

Classical algebra: Relation between the roots and coefficients, fundamental theorem of Classical algebra (no proof required), nature of roots, Descartes rule of signs and of Sturm's theorem, transformation of equations, multiple roots, reciprocal equations, special roots, symmetric function of roots, solutions of cubic equations (Cardan method) and biquadratic equation (Ferrari's method). Cauchy-Schwartz inequality, inequality involving A.M. (including weighted), G.M., H. M. and their applications, m^{th} power theorem.

Set, relation, mapping and algebraic structure: Basic properties of sets, set operations. De Morgan's laws, cartesian product, relation, equivalence relation, mapping, injection, surjection, bijection, identity and inverse mappings, composition of mappings.

Group Theory: Group, abelian group, examples of groups from number system, roots of unity, matrices, symmetries of squares, triangles etc., groups of congruence classes, Klein's 4 group, order of an element of a group, order of a group, subgroups.

Unit II **[12 hours]**

Differential calculus: Limit of a function, indeterminate forms and L'Hopital's rule, continuity, derivatives and rates of change, the derivative of a function, derivatives of polynomials and exponential functions, the product and quotient rules, derivatives of trigonometric functions, the chain rule, implicit differentiation, derivatives of logarithmic functions, Roll's theorem, MVTs and their applications, successive differentiation, Leibnitz's rule, maxima and minima, asymptotes, envelopes, arc length, curvature.

Sequence and series: Sequences, series, the integral test and estimates of sums, the comparison tests, alternating series, absolute convergence and the ratio and root tests, strategy for testing series, power series, representations of functions as power series, Taylor and Maclaurin series.

Unit III **[12 hours]**

Differential equations: First order differential equations: order and degree of a differential equation, separable differential equations, homogeneous differential equations, equations reducible to homogenous differential equations form, linear differential equations and equations reducible to linear differential equations form, integrating factor and exact differential equations,

Modelling using variable separable equations: Growth and Decay, population growth, growth of bacteria, pharmacology, spread of disease doubling time and half-life, radioactive decay, carbon dating, Newton's law of cooling and heating, modelling of electric circuits: Kirchhoff's voltage law, Kirchhoff's current law.

Unit IV **[10 hours]**

Functions of several variables: Partial derivatives, the chain rule, the gradient and its properties, directional derivatives, total derivatives and Jacobians, differentials and their invariance, Taylor's formula for functions of several variables, transformation of partial derivatives by change of variables, the inverse and implicit function theorems, local extremal points, global extreme value problems with and without constraints, the Lagrange multiplier method, the method of least squares**,** maxima and minima of functions of several variables, finding critical points, the second derivative test for local maxima/minima and saddle points, the method of Lagrange multipliers.

Unit V **[8 hours]**

Matrices and Determinants: Matrices of real and complex numbers, Algebra of matrices. Symmetric and skew symmetric matrices. Hermitian and skew-Hermitian matrices. Orthogonal

matrices, determinants: definition, basic properties of determinants, minors and cofactors, symmetric and skew-symmetric determinants, adjoint, invertible matrix, inverse of an orthogonal matrix, echelon matrix, rank of a matrix, determination of rank of a matrix, normal forms.
Solution of system of linear equation.

Unit VI **[15 hours]**

Integral calculus: The fundamental theorem of calculus (review), indefinite integrals and the net change theorem, the substitution rule, applications of integration, areas between curves, volumes, techniques of integration, integration by parts, trigonometric integrals, trigonometric substitution integration of rational functions by partial fractions, approximate integration, improper integrals. Multiple integrals: Double integrals over rectangles, iterated integrals, double integrals over general regions, triple integral.

Text Books:

T1) Shanti Narayan,P K, Mittal, *Integral Calculus* , S Chand
T2) S. K. Mapa, *Higher algebra*, Lavent book distributors.
T3) Shanti Narayan, *Differential Calculus*. S.Chand Publishers.
T4) B. N. Mukherjee, B. C. Das, *Key to differential calculus*, U N Dhur& Sons.
T5) Ghosh, R.K., Maity K.C., *An Introduction to Differential Equations*, New Central book agency private Ltd.
T6) M. D. Raisinghania, *Ordinary and Partial Differential Equations*, S.Chand.
T7) S.K. Mapa, *Classical Algebra*, Lavent book publishers.

Reference Books:

R1) B. S. Vaatsa, *Theory of matrix*, New Age Publication.
R2) Hoffman and Kunze, *Linear algebra*, Pearson.
R3) M.D. Raisinghania, *Advanced Differential Equations*,S.Chand.
R4) S.K. Mapa, *Introduction to Real Analysis*, Lavent Book House
R5) Shanti Narayan,M. D. Raisinghania, *Elements of Real Analysis*, S.Chand.
R6) Shepley L Ross, *Introduction to Ordinary Differential Equation*, John Wiley& Sons

Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination
Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	30	20	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and Pos		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	**Recall** the knowledge to classify numbers into different number sets.	PO1, PO5, PO7, PO8
CO2	**Develop** a modern approach to the treatment of the theory of Integers and Complex numbers.	PO1, PO5, PO7, PO8
CO3	**Relate** the fundamental knowledge of limit, continuity and derivatives of different types of function.	PO1, PO5, PO7, PO8
CO4	**Illustrate** origins and applications of differential equations. Describe what Solutions of Differential Equations mean.	PO1, PO5, PO7, PO8
CO5	**Utilize** the knowledge of group theory with binary operations, properties and learn some special groups.	PO1, PO5, PO7, PO8
CO6	**Construct** double and triple integrals and its different applications.	PO1, PO5, PO7, PO8
CO7	**Make use of** the matrix calculus in solving a system of linear algebraic equations using multiple methods including Gaussian elimination and Matrix inversion methods.	PO1, PO5, PO7, PO8

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
MTH11508	Elective Mathematics-I	3	–	–		-		3	3

1=weakly mapped
2= moderately mapped
3=strongly mapped

SOC11003	SOCIOLOGY I: INTRODUCTION TO SOCIOLOGY	L	T	P	C
Version 1.0	Contact Hours – 75	5	1	0	6
Pre-requisites/Exposure					
Co-requisites	--				

Course Objectives

1. This introductory paper is intended to acquaint the students with sociology as a social science.
2. This course discusses the distinctiveness of the sociological approach among the social sciences.
3. This course endeavors to introduce students to the major concepts and help students develop proficiency with sociological concepts.
4. This course introduces students to the distinctiveness of the sociological perspective.
5. The students will have an in-depth understanding of the social processes that lead to change.

Course Outcomes

On completion of this course, the students will be able to--

CO1. **Understand** sociological concepts and terms.

CO2. **Apply** sociological perspectives to their everyday life.

CO3. **Construct** an understanding of the major social institutions and the relationship between individual and society.

CO4. **Identify** the process of social stratification.

CO5. **Illustrate** the significance and the process of social change.

Course Description

This course introduces the students to the concepts of sociology. Students will be able to learn about the interrelationship of Sociology with the other social sciences, the various social processes. Students would get acquainted with the processes of socialization and social control. By studying this course, students will be able to have an in-depth understanding of the sociological concepts and the relationship between individual and society.

Course Content

Unit-I **10 lecture hours**

The nature of sociology

The meaning and scope of sociology — the sociological perspective

Unit-II **10 lecture hours**

The Relationship of Sociology with Other Social Sciences

Unit-III **15 lecture hours**

Basic concepts:

Society, Socialization; community, institution, association, group, culture; social structure, status and role, etc. —

Unit-IV **13 lecture hours**

Institutions- Family and kinship, Religion, education, politics, etc. — Individual and society

Unit-V **13 lecture hours**

Social Stratification

Unit-VI **17 lecture hours**

Social Control and Change

Text Books

1. Abraham.F.2010. Contemporary Sociology: An Introduction to Concepts and Theories. Oxford University press

2. Bottomore, T.B. 1972. Sociology: A guide to problems and literature. Bombay: George Allen and Unwin (India).

3.Giddens,A., 1993.Essentials of Sociology, Uk: Polity Press

4.Harlambos, M. 1998. Sociology: Themes and perspectives. New Delhi: Oxford University Press.

5.Inkeles, Alex. 1987. What is sociology? New Delhi: Prentice-Hall of India.

6.Jayaram, N. 1988. Introductory sociology. Madras: Macmillan India.

7.Johnson, Harry M. 1995. Sociology: A systematic introduction. New Delhi: Allied Publishers.

8.Schaefer, Richard T. and Robert P. Lamm. 1999. Sociology. New Delhi: Tata-McGraw Hill.

9.Jayaram, N. 1988. Introductory sociology. Madras: Macmillan India.

Modes of Examination: Assignment/Quiz/Film review (documentaries)/ Project/Group Discussion/ Presentation/Extempo/Written Exam

Components	Internal	Mid Term	End Term
Weightage (%)	30	20	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	**Understand** sociological concepts and terms.	**PO2**
CO2	**Apply** sociological perspectives to their everyday life.	**PO2, PO6, PO7, PO8**
CO3	**Construct** an understanding of the major social institutions and the relationship between individual and society.	**PO4, PO6, PO7, PO8**
CO4	**Identify** the process of social stratification.	**PO2, PO4 PO8**
CO5	**Illustrate** the significance and the process of social change.	**PO2, PO4, PO8**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
SOC11003	Introduction to Sociology	-	2	-	2	-	3	3	3

1=weakly mapped
2= moderately mapped
3=strongly mapped

Course Code	DESIGN THINKING	L	T	P	C
Version 1.0		2	0	0	2
Pre-requisites/Exposure	Knowledge of analyzing society problems and product usage problems and a zeal to improve the current situation, in addition to knowing to using laptop/computers, internet, social media interaction, file sharing and uploading, email and communication etiquettes.				
Co-requisites	--				

Course Objectives

1. To enable students to acquire knowledge, imagination and be more assertive on opinions on problems in society.
2. To enable students to learn basics of research, data collection, analysis, brainstorming to find solutions to issues.
3. To make them understand Design Thinking methodologies to problems in field of study and other areas as well.
4. To help students to understand future Engineering positions with scope of understanding dynamics of working between inter departments of a typical OEM.

Course Outcomes

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

CO1. Examine design thinking concepts and principles
CO2. Practice the methods, processes, and tools of design thinking
CO3. Apply the Design Thinking approach and model to real world scenarios
CO4. Analyze the role of primary and secondary research in the discovery stage of design thinking

Catalog Description

Design thinking course is a completely online course offered to the first year UG programs across all streams. This course is designed to help understand the steps followed in the process of designing a solution to a problem.

Course Content

UNIT I: WHAT IS DESIGN THINKING 2 hours

Designers seek to transform problems into opportunities. Through collaboration, teamwork, and creativity, they investigate user needs and desires on the way to developing human-centered products and/or services. This approach is at the very heart of design thinking.

UNIT II: THE DESIGN THINKING MODEL **2 hours**

A tool that helps guide you along a design thinking path. The model does this by providing a series of activities that that will help you effectively design a product, service or solution to a user's need. The model presents the approach as a process, allowing us to look at each step – or phase – along the journey to the development of a final design.

UNIT III: PHASE 1: DISCOVER **4 hours**

Begin the design thinking process with the Discover phase, where you will identify the specific problem your design is intended to solve, as well as important usability aspects from those who will use your design. Discovery can be performed through a variety of different research methods which you will learn in this module.

UNIT IV: PHASE 2: DEFINE **4 hours**

In the Define phase, you come to understand the problem. We often refer to this as framing the problem. You can do this by using a variety of tools, including storytelling, storyboarding, customer journey maps, personas, scenarios, and more.

UNIT V: PHASE 3: DEVELOP **4 hours**

Turn your attention to solving the problem. In this phase you brainstorm custom creative solutions to the problems previously identified and framed. To do this, you conceptualize in any way that helps, putting ideas on paper, on a computer, or anywhere whereby they can be considered and discussed.

UNIT VI: PHASE 4: DELIVER **4 hours**

This phase is all about testing and building concepts. Here you take all of the ideas that have been discussed to this point and bring them a little closer to reality by building a concept; something that makes it easier for a user to experience a design. This concept is referred to as a prototype.

UNIT VII: PHASE 5: ITERATE **4 hours**

You will test the prototype of your design solution, collecting and acting on feedback received. These actions may mean minor or major revisions to your design, and are repeated as often as necessary until a solution is reached. Tools such as focus groups and questionnaires are used to help you collect feedback that can help with your final design.

UNIT VIII: BEYOND DESIGN THINKING **2 hours**

The Design Thinking Model is a tool that helps guide you along a design thinking path. The model does this by providing a series of activities that that will help you effectively design a product, service or solution to a user's need. The model presents the approach as a process, allowing us to look at each step – or phase – along the journey to the development of a final design.

Text Books

1. All the references are available to download in the online course.

Reference Books

1. Brown, Tim. “What We Can Learn from Barn Raisers.” Design Thinking: Thoughts by Tim Brown. Design Thinking, 16 January 2015. Web. 9 July 2015.
2. Knapp, Jake. “The 8 Steps to Creating a Great Storyboard.” Co.Design. Fast Company & Inc., 21 Dec. 2013. Web. 9 July 2015.
3. van der Lelie, Corrie. “The Value of Storyboards in the Product Design Process.” Journal of Personal and Ubiquitous Computing 10.203 (2006): 159–162. Web. 9 July 2015. [PDF].
4. Millenson, Alisson. “Design Research 101: Prototyping Your Service with a Storyboard.” Peer Insight. Peer Insight, 31 May 2013. Web. 9 July 2015.

Modes of Evaluation: online discussion and assignments

Examination Scheme: Continuous evaluation

All evaluation on the online course is done based on continuous basis for each of the 8 units/modules throughout the semester. The assignment submission formats are in the form of qualitative discussion boards and online submissions of research data and developed product lifecycle and originally designed/redesigned prototype images.

Semester II

ECO11001	Microeconomics	L	T	P	C
Version 1.1	Contact Hours – 60	3	0	0	3
Pre-requisites/Exposure	NA				
Co-requisites	NA				

Course Objectives

This course introduces students to the terminology and analytic principles used in microeconomics, which is broadly defined as the study of markets, and to the application of these conceptual tools to several policy issues. The decisions of buyers and sellers and their interaction in market transactions will be analyzed. This also explores how different market structures can shape economic results, and how markets can sometimes (but not always) help society achieve desirable outcomes.

Course Outcomes:

On completion of this course, the students will be able to:

CO1. **Understand** the analytic principles used in microeconomics in individual decision making framework

CO2. **Apply** these conceptual tools to several policy making analysis in theoretical and empirical studies.

CO3. **Analyze** the decisions of buyers and sellers and their interaction in market transactions thereby shaping the equilibrium market outcomes.

CO4. **Analyze** the process and impact of different government interventions such as taxes on subsidies on equilibrium outcomes both in commodity and factor markets.

Course Content

Unit I: **Demand and Supply** **(10 Hours)**

Determinants of Demand; Law of Demand; Demand Function, Demand Schedule and Demand Curve; Determinants of Supply; Law of Supply; Supply Function, Supply Schedule and Supply Curve; Shift and movement along the Demand & Supply Curve; Elasticity of Demand – Price, Income, Cross; Elasticity of Supply; Substitutes & Complementary Goods, Normal & Inferior Goods. Equilibrium Determination, Impact of changes in Demand and Supply, Change in Equilibrium, Stability of Equilibrium; Consumer Surplus, Producer Surplus, Deadweight Loss, Change in surplus, Incidence of Tax, Impact of Subsidy.

Unit II: **Theory of Consumption** **(10 Hours)**

Budget Constraint: Composite goods, Budget Set, Properties of budget set, Budget Line, change in budget line due to change in income and prices, Application: Taxes, Subsidies, Rationing Preferences: Consumer Preferences, basic assumptions about preferences; Indifference Curves, Indifference Map, Marginal Rate of Substitution; Shape of Indifference curves: Perfect substitutes, perfect complements, Bads, Neutrals, Satiation, Discrete Goods Utility: Cardinal Utility, Utility

function, Total utility, Marginal Utility, Ordinal Utility, Preference, MRS Choice:Optimal Choice, Consumer's Equilibrium, Change in Equilibrium due to change in income, and prices, Income Consumption Curve, Engel Curve, Price Consumption Curve, Individual Demand, From individual to market demand; Price Effect: Hicks, Slutsky approach, Income Effect, Substitution Effect, Compensated Demand.

Unit III: Theory of Production and Cost (10 Hours)

Technological relationship between output and inputs, Production decision of a firm; Production function, short run versus long run production; Production with single variable input: TP, AP, MP, Law of diminishing marginal return; Production with two variable inputs: Isoquant, Economic region of production, Input flexibility, Input substitution; MRTS, Elasticity of substitution; Expansion Path, Returns to scale; Effects of changes in input prices on output. Special Cases: Homogeneous Production Function, Cobb-Douglas Production. Different types of costs; opportunity cost, sunk cost; fixed cost, variable cost; Costs in the SR production, TC, AC, MC, Cost curves; Costs in the LR production, LR cost curves, relation between SR and LR cost curves; Shift in cost curves. Input choices, Iso-cost line, Change in technology and change in input prices; optimal choice of inputs, Economies of Scope, Economics of Scale, Learning Curve.

Unit IV: Market: Perfect Competition (10 Hours)

Profit Maximization by a firm, Competition in a market, Different forms of Competition; Perfectly competitive market and its characteristics, Choosing output in Short Run, SR supply curve, Choosing output in the Long Run, LR Industry supply curve: Increasing cost industry, Decreasing cost industry, and Constant cost industry; Efficiency of a competitive market: Effect of Tax, Minimum Prices, Price Support, Production Quota, Impact of tax and subsidy.

Unit V: Market: **Imperfect Competition (5 Hours)**

Market Power, Sources, Monopoly, Monopsony, Bilateral Monopoly, Natural Monopoly; Monopolist's Output Decision, and pricing. Monopolistic Competition: Characteristics, Equilibrium in Short and Long run, Economic Efficiency; Branding Oligopoly: market structure, collusion, competition, equilibrium.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach

- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment/Quiz/Project/Presentation/ Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

Text and References

Core Text Books

T1. Intermediate Microeconomics: A Modern Approach. H.R. Varian. East West Press; 8th edition (2010).

T2. Modern Microeconomics. Koutsoyiannis. Palgrave Macmillan; 2nd edition, 2008.

Reference Books:

R1. Microeconomics. R. S. Pindyck, D.L. Rubinfeld, and P.L. Mehta. Pearson, India, 7th edition, 2013

R2. Microeconomics: Theory and Applications. G.S. Maddala, and E. Miller. McGraw Hill Education (India) Private Limited; 3rd edition, 2004.

R3. Principles of Microeconomics. D. Salvatore. Oxford University Press (5th or later edition).

R4. Microeconomic Theory. Ferguson, and Gould. All India Traveler Book Sellers (6th edition).

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs		
	Course Outcomes (COs)	**POs**
CO1	**Understand** the analytic principles used in microeconomics in individual decision making framework	**PO1, PO2**
CO2	**Apply** these conceptual tools to several policy making analysis in theoretical and empirical studies.	**PO1, PO4**
CO3	**Analyse** the decisions of buyers and sellers and their interaction in market transactions thereby shaping the equilibrium market outcomes in different markets.	**PO1, PO4**
CO4	**Analyse** the process and impact of different government interventions such as taxes on subsidies on equilibrium outcomes both in commodity and factor markets.	**PO3**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO11001	Microeconomics	3	3	3	3				

1=weakly mapped
2= moderately mapped
3=strongly mapped

ECO11007	**Basic Statistics**	L	T	P	C
Version 1.0	Contact Hours – 60	3	1	0	4
Pre-requisites/Exposure	Set theory and logical thinking.				
Co-requisites	-				

Course Objectives

The main objective of this course is to train the students to use the techniques of statistical analysis, which are commonly applied to understand and analyze economic problems. The paper deals with simple tools and techniques, which will help a student in data collection, presentation, and to understand the basic descriptive properties of the data. This paper introduces the concept of bivariate data and their application in real life. A major emphasis is given on the fundamental knowledge of probability where the true essence of statistics lies.

Course Outcomes

After completing this course, a student will

CO1: Understand different types of data and data collection methods in the field of economics.
CO2: Demonstrate the fundamental knowledge of central tendency, dispersion, skewness and kurtosis using various microeconomic and macroeconomic variables.
CO3: Understand correlation analysis and basic ideas about regression using economic variables to obtain the basic ideas of bivariate data.
CO4: Analyse the nature of different economic time series using various methods.
CO5: Develop insights about probability along with its application on Bayes' theorem.

Course Content

Unit-I: Introduction to Statistics [7 Hours]

Basic concepts: Population, Sample, Parameter; Techniques of data collection- Sampling vs. Population, primary and secondary data. Classification and presentation of data. Graphic and diagrammatic representation of data. Frequency distribution and its diagrammatic representation.

Unit-II: Measures of Central Tendency [8 Hours]

Arithmetic Mean, Median and Mode for grouped and ungrouped data, Comparison of Mean, Median and Mode, Geometric and Harmonic Mean, Composite Mean.
Application: Index Numbers: Index number as weighted averages, Price and quantity index numbers, Cost of Living Index Number, Wholesale Price Index, Stock market indices.

Unit-III: Measures of Dispersion [8 Hours]

Range, Mean Deviation, Quartile Deviation and Standard Deviation, Measures of Relative Dispersion, Curve of Concentration, Moments, Central and non-central moments, Skewness, Kurtosis, different measures of skewness and kurtosis.
Application: Measurement of Economic Inequality: Gini Coefficient and Lorenz Curve.

Unit-IV: Bivariate Data [6 Hours]

Definition of bivariate data, scatter diagram, bivariate frequency distribution-Simple and multiple correlation and regression. Covariance as a measure of association; Coefficient of Correlation; Rank correlation; Difference between correlation and regression approach

Unit-V: Time series analysis and forecasting methods [8 Hours]

Introduction and analysis of a time series, trend method, time series method, correlation regression method, End–Use method, exponential smoothing method, Delphi method, demand forecasting for industrial products.

Unit-VI: Probability Theory [8 Hours]

Elements of Probability Theory: Sample Space, Probability Space, Events, Classical Definition of Probability. The Addition Rule, the Multiplication Rule, Theorems of Total Probability, Conditional Probability and Statistical Independence, Limitations of the Classical definition, Axiomatic Approach, total probability theorem, Bayes' Rule and its applications.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

Core Text:
Goon, Gupta, Dasgupta – Fundamentals of Statistics, Vol I, World Press Private limited (2016).

Reference Books:

1. Lind, Marchal, Wathen. Basic Statistics for Business and Economics, McGraw Hill Education; Seventh edition (2013).
2. Gupta C B, Gupta V. An Introduction to Statistical Methods, Vikas Publishing House, New Delhi.
3. Gupta, S. C., and Kapoor, V. K. Fundamentals of Mathematical Statistics. Sultan Chand & Sons (2014).

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	**Understand** different types of data and data collection methods in the field of economics.	PO1, PO2
CO2	**Demonstrate** the fundamental knowledge of central tendency, dispersion, skewness and kurtosis using various microeconomic and macroeconomic variables.	PO1, PO2, PO3
CO3	**Understand** correlation analysis and basic ideas about regression using economic variables to obtain the basic ideas of bivariate data	PO1, PO2, PO3, PO6, PO7, PO8
CO4	**Analyse** the nature of different economic time series using various methods.	PO1, PO2, PO3, PO6, PO7, PO8
CO5	**Develop** insights about probability along with its application on Bayes' theorem.	PO1, PO2, PO6, PO7, PO8

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO11007	Basic Statistics	3	3	2	_	_	2	2	2

1=weakly mapped
2= moderately mapped
3=strongly mapped

ECO11031	Macroeconomics	L	T	P	C
Version 1.0	Contact Hours – 60	3	1	0	4
Pre-requisites/Exposure	Basic knowledge of economics				
Co-requisites	--				

Course Objectives

This course aims to introduce the students to the basic concepts of macroeconomics. Macroeconomics deals with the aggregative aspects of the economy. This course discusses the preliminary concepts associated with the determination and measurement of aggregate macroeconomic variable like savings, investment, GDP, money, inflation, and the balance of payments. It discusses various alternative theories of output and employment determination in a closed economy in the short run as well as medium run, and the role of policy in this context. It also introduces the students to various theoretical issues related to an open economy.

Course Outcomes

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

CO1. Understand different macroeconomic variables like consumption, savings, investment, GDP, money, inflation, etc. and the propositions of different schools of thought that dominate macroeconomics.
CO2. Understand the macroeconomic tools used in policy making mainly in a closed economy.
CO3. Develop insights about the application of mathematical models used for the determination and measurement of aggregate macroeconomic variables.
CO4. Analyze the aggregate macroeconomic issues of price, output, and rate of interest mainly in the context of a closed economy.

Course Content

Unit 1: Introduction to Macroeconomics and National Income Accounting (12 hours)

Basic issues studied in macroeconomics; measurement of gross domestic product; income, expenditure and the circular flow; real versus nominal GDP; price indices.

Unit 2: The Closed Economy in the Short Run (12 hours)

Classical and Keynesian systems; simple Keynesian model of income determination; ISLM model; fiscal and monetary multipliers.

Unit 3: Aggregate Demand and Aggregate Supply Curves (10 hours)

Derivation of aggregate demand and aggregate and supply curves; interaction of aggregate demand and supply.

Unit 4: Money and Inflation (5 hours)

Functions of money; quantity theory of money; determination of money supply and demand; credit creation; tools of monetary policy, cost push and demand pull inflation.

Unit 5: Unemployment and Expectations (6 hours)

Aggregate supply- the Sticky-Price Model, the Imperfect Information Model; Okun's Law; the short-run trade -off between inflation and unemployment; Phillips Curve; Shifts in the Phillips curve; the role of expectation; Natural Rate of unemployment ;The Phillips curve and the Aggregate supply curve; The debate.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

Core Text:

Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010

Reference Books:

1. N. Gregory Mankiw. Macroeconomics, Worth Publishers, 7th edition, 2010

2. Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011.

3. Richard T. Froyen. Macroeconomics: Theories & Policies. Pearson Education; 10th Edition 2013.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	**Understand** different macroeconomic variables like consumption, savings, investment, GDP, money, inflation, etc. and the propositions of different schools of thought that dominate macroeconomics.	**PO1, PO2, PO4**
CO2	**Understand** the macroeconomic tools used in policy making mainly in a closed economy.	**PO1, PO2, PO4**
CO3	**Develop** insights about the application of mathematical models used for the determination and measurement of aggregate macroeconomic variables.	**PO1, PO2, PO4,PO6, PO7, PO8**
CO4	**Analyze** the aggregate macroeconomic issues of price, output, and rate of interest mainly in the context of a closed economy	**PO1, PO2, PO4, PO6, PO7,PO8**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO11031	Macroeconomics	3	3	_	3	_	2	2	2

1=weakly mapped
2= moderately mapped
3=strongly mapped

IST11002	**Spreadsheet and Its Application in Business**	L	T	P	C
Version 1.0	Contact Hours – 30	0	0	4	2
Pre-requisites/Exposure	Basic Computer Knowledge				
Co-requisites	-				

Course Objectives

1. To equip students with basic understanding of Spreadsheets.
2. To help students to understand the application of Spreadsheets in business.
3. To help students to be skilled in advanced formulas and functions.
4. To help students to perform operations and data analysis using Spreadsheets.

Course Outcomes

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

CO1. Understand and adapt skills to perform basic tasks using Spreadsheet.
CO2. Apply skills to analyze data.
CO3. Apply skills to perform tasks using Spreadsheet related to business.

Course Description

Data is the essence of everything these days. Skillful data analysis gives edge to a company over its competitors. For data analysis, knowledge of exact process is very essential. This course enables students to intricacies of MS Excel as a Spreadsheet software. After completion of this course students will be well aware of the basic and advanced excel features which will allow them to perform data analysis in real time. This will also help them while they are searching for job by increasing their employability skills.

Course Content

Unit-1 Introduction to MS Excel **15 Lecture Hours**

Introduction, Working with Excel Workbook, Sheets, Cells, Basic and Advanced Formatting, Filtering Data, Sorting Data – Basic and Advanced, Printing Datasheets.

Unit-2: Excel Formulas and Functions **10 Lecture Hours**

Introducing Formulas and Functions – Using formulas, Auto sum, Using Relative and Absolute References.

Unit-3: Business Application of Spreadsheet **15 Lecture Hours**

Creating Charts, Working with Lookups, Pivot Tables, Goal Seek, Scenarios, Data Validation, Removing Duplicates, Hyperlinking – within and outside Excel. Tracking Changes, Introduction to Macros.

Reference Books

1. Alexander M, Kusleika R, Walkenbach J, "Excel 2019 Bible", Wiley.

2. Frye C, "Microsoft Excel 2019 Step by Step", Microsoft

Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination
Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and Pos		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	Understand and adapt skills to perform basic tasks using Spreadsheet.	**PO1, PO6**
CO2	Apply skills to analyze data.	**PO2, PO4, PO6**
CO3	Apply skills to perform tasks using Spreadsheet related to business.	**PO1, PO2, PO4, PO6, PO7**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO 8
IST11002	Spreadsheet and Its Application in Business	3	2	2	1	1	3	-	1

1=weakly mapped
2= moderately mapped
3=strongly mapped

MTH11509	Elective Mathematics II	L	T	P	C
Version 1.0	Contact Hours – 75	5	1	0	6
Pre-requisites/Exposure	10^{th} / 12^{th} level Mathematics				
Co-requisites	-				

Course Objectives

1. To help the students to acquire basic knowledge on Vector space
2. To give the students ideas about advanced differential equation and different methods for solving such equations
3. To enable students acquire knowledge on partial differential equations and various methods for their solutions
4. To give the students a bit knowledge about Laplace transforms of elementary functions and its application in solving ordinary differential equations
5. To enable the students to acquire elementary knowledge of Fourier series
6. To help the students to acquire knowledge on calculation and interpretation of errors in numerical methods and various numerical methods to find solutions of differential equations, algebraic equations etc.
7. To give the students a bit knowledge about functions of complex variables.

Course Outcomes

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

CO1. **Define** a real vector spaces, subspaces and various concepts on it
CO2. **Extend** the knowledge on ordinary differential equation
CO3. **Find** Series solution of differential equations by Power series method, Legendre's polynomials, and Bessels function
CO4. **Solve**vibrating string problem, heat conduction problem, Laplace and beam equation using Lagrange's method, Charpit's method and Method of separation of variables for second order partial differential equations
CO5. **Define** Laplace transform and Fourier transform and obtain solutions of ordinary differential equations
CO6. **Illustrate** various numerical methods with examples to obtain numerical integration and solutions of algebraic and transcendental equations, differential equations
CO7. **Find**the errors in computation by numerical methods
CO8. **Define** analytic functions and study various concepts on it.

Course Description

The course is designed for students of various department like Economics, Physics, Chemistry etc. The focus of this course is to enable the students to apply basic Mathematical tools to learn other subjects easily. By taking this course student will gain the concept of sets and different properties of Vector spaces. This course is intended to provide knowledge about ordinary and partial

differential equations. It also provide some tools/methods for solving different kind of ordinary and partial differential equations. Furthermore, some basic ideas about Laplace transform and Fourier transform of a given function are introduced in this course. It also includes some application of different kind of numerical methods to find solutions of algebraic and transcendental equations, differential equations, and numerical integration. Concepts on analytic functions and a few related concepts will be discussed in this course.

Course Content

Unit I **10 Lecture Hours**

Vector / linear space: Definitions and examples, subspace, linear combination, independence and dependence, linear span, basis, dimension of a vector space, null space, rank-nullity theorem (statement), linear transformation, translation, rotation, matrix representation of linear transformation, Eigen values and eigenvectors of matrices and their properties, Cayley-Hamilton, AM, GM, diagonalizations, quadratic forms, definiteness.

Unit II **10 Lecture Hours**

Advanced differential equation: linear differential equations of order 2, homogeneous linear equations of arbitrary order with constant coefficients, non-homogeneous linear equations with constant coefficients, Euler and Cauchy's equations, method of variation of parameters, system of linear differential equations.

Series solution of differential equations, Power series method, Legendre's equation and Legendre's polynomials, Bessel's equation, Bessels function and its application

Unit III **18 Lecture Hours**

Partial differential equation of first order, Lagrange's method, some special types of equation which can be solved easily by methods other than general method, Charpit's method, Method of separation of variables for second order PDE, vibrating string problem, existence and uniqueness of solution of vibrating string problem, heat conduction problem, existence and uniqueness of solution of heat conduction problem, Laplace and beam equation, non-homogeneous problem.

Unit IV **13 Lecture Hours**

Laplace Transforms: Motivation, Definition, Linearity property, Laplace transforms of elementary functions, shifting theorem Inverse Laplace transforms of derivatives and integrals, Convolution theorem, Application of Laplace transforms in solving ordinary differential equations

Fourier series: Periodic functions, Euler's formulae. Fourier expansion of periodic functions with period 2, Dirichlet's conditions, Fourier series of even and odd functions, Fourier series of periodic functions with arbitrary periods, Half-range Fourier series.

Unit V **12 Lecture Hours**

Approximation and error in computation: Accuracy of numbers, error, types of error, round- off error, truncation error, error propagation, error in the approximation of a function, order of approximation.

Solution of algebraic and transcendental equations: Bisection method, false position method, fixed-point iteration method, secant method, Newton's method and its convergence.

Numerical integration: Newton-Cotes formula, Trapezoidal rule, Simpson's one-third and three-eight rules, Weddle's rule.
Numerical solutions of differential equations: Euler's method, Picard's method and Runge-Kutta method.

Unit VI **12 Lecture Hours**

Functions Of Complex Variables: Reorientation, Analytic function, Cauchy – Riemann equation (Cartesian and Polar forms), Harmonic functions, Conformal mappings, Complex integration, Cauchy's theorem and integral formula, Singularities, Taylor's and Laurent's Series theorem, Evaluation of integrals using residues

Reference Books:

1. B. S. Vaatsa, Theory of matrix, New Age Publication.
2. Hoffman and Kunze, Linear algebra, Pearson.
3. M.D. Raisinghania, Advanced Differential Equations,S.Chand.
4. M. D. Raisinghania, Ordinary and Partial Differential Equations, S.Chand.
5. R. K. Jain and S. R. K. Iyengar, Advanced Engineering Mathematics, Narosa Publishing House 2002
6. B.S. Grewal , Numerical Methods in Engineering & Science with Programs in C & C++, Khanna Publications.

Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination
Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	30	20	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	**Define** a real vector spaces, subspaces and various concepts on it	**PO1**
CO2	**Extend** the knowledge on ordinary differential equation	**PO1**
CO3	**Find** Series solution of differential equations by Power series method, Legendre's polynomials, and Bessels function	**PO3,PO7,PO8**
CO4	**Solve**vibrating string problem, heat conduction problem, Laplace and beam equation using Lagrange's method, Charpit's method and Method of separation of variables for second order partial differential equations	**PO3,PO7,PO8**
CO5	**Define** Laplace transform and Fourier transform and obtain solutions of ordinarydifferential equations	**PO1, PO3,PO7,PO8**
CO6	**Illustrate** various numerical methods with examples to obtain numerical integration and solutions of algebraic and transcendental equations, differential equations	**PO3,PO7,PO8**
CO7	**Find**the errors in computation by numerical methods	**PO7,PO8**
CO8	**Define** analytic functions and study various concepts on it.	**PO1**

SOC11007	**Sociology II: Indian Society: Images and Realities**	**L**	**T**	**P**	**C**
Version 1.0		5	1	0	6
Pre-requisites/Exposure	Understanding about the different aspects of Indian society				
Co-requisites	--				

1=weakly mapped
2= moderately mapped
3=strongly mapped

Course Objectives

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
MTH11509	Elective Mathematics II	3	-	3	-	-	-	3	3

1. The objective is to give an account of India in terms of its cultural and historical geography and how these contribute to its diversity and plurality.
2. This course seeks to provide an interdisciplinary introduction to Indian society.
3. The students will learn different approaches to the study of Indian Civilization.

4. This course will also help students to explain the role of colonialism in the emergence of Indian society from fragmented principalities to a unified nation.
5. The students will have an in-depth understanding about the various elements that have played a role in unifying Indian society.

Course Outcomes

On completion of this course, the students will be able to--

CO1. **Understand** the different aspects of Indian society.
CO2. **Distinguish** between Indian unity and diversity in terms of its aspects.
CO3. **Construct** an understanding about the major social and political institutions and processes.

CO4. **Identify** the relation between family and gender along with caste and religion.

CO5. **Illustrate** the criticisms of different aspects and diversities of Indian society.

Course Description

This course aims to introduce the students to various aspects of Indian society. Indian society has had a long history, dating as far back as 2000 BCE. In this long span of its chequered history, India witnessed many upheavals and periods of calm. India is also a diverse land of many ethnicities, linguistic groups, religions and other social formations and categories, all of which contribute to making Indian society a complex one. This course examines many such perceptions of Indian society by taking into consideration the continuities and discontinuities through its various institutions and processes.

Course Content

Unit – I: **15 lecture hours**
Ideas of India: Civilization, Colony, Nation and Society

Unit II: **15 lecture hours**
Institutions and Processes: Family, Kinship, Marriage

Unit III: **15 lecture hours**
Village, Town and Region

Unit IV: **10 lecture hours**
Caste, Religion and Ethnicity; Family and Gender

Unit V: **10 lecture hours**
Political Economy

Unit VI: **10 lecture hours**
Critiques of all aspects of Indian society

Text Books

1. Embree, Ainslie Thomas,. Imagining India. Delhi: Oxford University Press, 1989. Chapter 1- Brahmanical Ideology and Regional Identities. Pp. 9 – 27
2. Cohn, Bernard. India: Social Anthropology of a Civilization, Delhi: OUP. Chapters 1, 3, 5 & 8 (1-7, 24-31, 51-59, 79-97)
3. Breman, Jan. 'The Village in Focus' from the Village Asia Revisited, Delhi: OUP 1997. Pp. 15-64
4. Cohn, Bernard, An Anthropologist Among Historians and Other Essays, Delhi: OUP, 1987, Chapters. 4 and 6. Pp.78-85 & 100 – 135
5. Mines, Diane P. Caste in India. Ann Arbor, Mich.: Association for Asian Studies, 2009. Pp. 1-35
6. Fuller, C. J. The Camphor Flame: Popular Hinduism and Society in India. Delhi: Viking, 1992. Chapter 1. Pp. 3 – 28.
7. Dube, Leela. 'On the Construction of Gender: Hindu Girls in Patrilineal India', Economic and Political Weekly, Vol. 23, No. 18 (Apr. 30, 1988), pp. WS11-WS19
8. Gray, John N. & David J. Mearns. Society from the Inside Out: Anthropological Perspectives on the South Asian Household. New Delhi: Sage,
9. Chatterjee, Partha. State and Politics in India. Delhi: Oxford University Press, 1997. Introduction: A Political History of Independent India. Pp. 1-39
10. Omvedt, Gail. Understanding Caste. New Delhi: Orient Black Swan, 2011. Chapters. 5, 9, 11 and Conclusion. Pp. 30-38, 67 – 73, 83 – 90, 97 – 105

11. Modes of Examination: Assignment/Quiz/Film review (documentaries)/ Project/Group Discussion/ Presentation/Extempo/Written Exam

Mode of Examination

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	**Understand** about the different aspects of Indian society.	**PO1, PO8**
CO2	**Distinguish** between Indian unity and diversity in terms of its aspects.	**PO1,PO4, PO6, PO8**
CO3	**Construct** an understanding about the major social and political institutions and processes.	**PO1, PO6, PO4, PO8**
CO4	**Identify** the relation between family and gender along with caste and religion.	**PO1, PO6, PO4, PO8**
CO5	**Illustrate** the criticisms of different aspects and diversities of Indian society.	**PO1, PO4, PO6, PO8,**

1=weakly mapped
2= moderately mapped
3=strongly mapped

EIC11001	**Venture Ideation**	L	T	P	C
Version 2.0		2	0	0	2
Pre-requisites/Exposure	Basic knowledge of English and computer applications such as Internet Explorer and MS Office				
Co-requisites	--				

Course Objectives

1. To help the students understand the way to be an Entrepreneur
2. To identify the right business opportunity
3. To empower students to perform a technical feasibility study and thereby developing a prototype
4. To help students in identifying their customers using primary and secondary research methods.
5. Expose students to various factors of market and competition with the help of market feasibility study, forecasting techniques, business model canvass and insights about financial statements.
6. To prepare students with finalizing their entrepreneurial Portfolio

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
SOC11007	Indian Society: Images and Realities	3	-	-	3	-	3	-	3

Course Outcomes

On completion of this course, the students will be able to:

CO1. Assess personal capacity in the context of the entrepreneurial process

CO2. Assess characteristics of successful entrepreneurs and entrepreneurial forms and processes

CO3. Apply resources, research and tools for Entrepreneurial ventures

CO4. Analyze and apply opportunity identification techniques, feasibility terminology, processes and models
CO5. Develop Ideation and planning documents for entrepreneurial venture

Catalog Description

Over the last decade, the core of our economy has been transitioning from one of industrial might, large monolithic corporations and mass production towards one of networks, flexible enterprises comprising many smaller units and unique value. This new economy is based on innovation originating in creativity and design; it is also disrupting long-standing and established employment patterns and bringing to the fore the importance of entrepreneurship. This core unit will bring together creativity, design and entrepreneurship at the conceptual and more practical level. It aims to explore the nature, determinants and consequences of creativity, design and entrepreneurship as well as the interaction between them.

Course Content

Unit 1. Introduction 6 hours
Preview of the Course, Introduction to the Course, Guest Lecture with U.S. Secretary of Commerce Penny Pritzker – Meaning of Innovation, Entrepreneurial opportunities, Factors influencing the feasibility of an innovation, Innovation strategy: technology-push or market-pull, Product-market fit, How to develop a business model, Walkthrough of the business model canvas, Welcome to Innovation for Entrepreneurs: From Idea to Marketplace.

Unit 2. Customer Discovery and Validation 6 hours
Customer types, Customer archetypes, Customer segments and business models, Customer segments, value propositions, product features, value mapping, interviewing customer, insights of your customers.

Unit 3: Product Understanding and Marketing. 6 hours
Customer value, The DNA of customer-centricity, Crossing the chasm, Qualitative and quantitative marketing research, importance and methods of market segmentation, Focusing on the target market, Beyond the chasm, Strategic implications of beyond the chasm, E-commerce: The internet as a selling platform.

Unit 4. Prototyping and Testing. 6 hours
Planning for prototyping, Rapid prototyping and development, Lean startup MVPs, Choosing a wire framing/UX prototyping tool, Anatomy of an experience map, What you'll learn from user testing, Analytics and insight, Troubleshooting your customer discovery, Levels of a product/service.

Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination

Examination Scheme:

Components	Continuous Assessment (course era)	**Summative Assessment (Video pitch for a business venture concept, Business model for a start-up using theories on creativity, design and entrepreneurship.)**
Weightage (%)	50 %	50 %

Relationship between the Program Outcomes (POs), Program Specific Outcomes (PSOs) and Course Outcomes (COs)

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
CO1	-	-	-	-	-	2	-	-	-	-	2	-	-	-
CO2	-	-	-	-	-	3	-	-	-	-	3	-	-	-
CO3	-	-	-	-	-	3	-	3	-	-	3	-	-	-
CO4	-	-	-	-	-	2	-	3	-	-	3	-	-	-
CO5	-	-	-	-	-	3	-	3	-	-	2	-	-	--
Average	-	-	-	-	-	2.6	-	3	-	-	2.6	-	-	--

1=Weakly mapped 2= Moderately mapped 3=Strongly mapped

OBH11012	**Human Resource Management**	**L**	**T**	**P**	**C**
Version 1.0	**Contact Hours - 60**	3	1	0	4
Pre-requisites/Exposure	Understanding of the general principles of management				
Co-requisites	Understanding of Organization Behaviour and Business Communication				
Academic Year	2020-2021				

Semester III

Course Objectives:

The objective of the course is to educate the student such that he/she understands:

1. To enable the students to understand the HR management and system at various levels in general and in certain specific industries or organizations.

2. To help the students focus on and analyse the issues and strategies required to select and develop manpower resources.
3. To develop relevant skills necessary for application in HR related issues.
4. To enable the students to integrate the understanding of various HR concepts along with the domain concept in order to take correct business decisions.

Course Outcome:

On completion of this course the students will be able to:

CO 1: Discuss the concept of human resource management and its relevance in organizations.

CO2: Develop necessary skill set for application of various HR issues.

CO3: Analyse the strategic issues and strategies required to select and develop manpower resources.

CO4: Examine the knowledge of HR concepts to take correct business decisions.

Course Description:

This course provides an overview of Human Resources Management, including an historical perspective of HR, strategies for designing HR activities, and the roles and responsibilities of HR professionals. It is a prerequisite to all upper-level HR classes for majors. This course provides an introduction to the various functions of human resource management, including job analysis, job evaluation, staffing, recruitment and selection, labour relations, planning, labour welfare, human rights legislation and employment equity.

Course Contents:

Unit I: Introduction to Human Resource Management: Definition and Concept, Features, Objectives, Functions, Process, Scope of Human Resource Management, Importance of Human Resource Management, Human Resource Practices. [10 L]

Unit II: HRM and Personnel Management: Concept of Personnel Management, Personnel Management in India, Functions of the Labour Welfare Officer, Difference Between Personnel Management and HRM. [10 L]

Unit III: Human Resource Planning: Concept of Human Resource Planning (HRP), Factors in HRP, Process of HRP. [10 L]

Unit IV: Job Analysis and Design: Job Analysis, Job Description, Writing a Job Description, Job Specification, Job Design - Various Approaches. [10 L]

Unit V: Recruitment: Concept of Recruitment, Factors Affecting Recruitment, Types of Recruitment; **Selection:** Concept of Selection, Process of Selection, Selection Tests, and Barriers in Selection. [10 L]

Unit VI: Selective Cases on the above topics. [10 L]

Suggested Readings:

Text Book(s):-

T1: Aswathappa, K.: Human Resource Management, Text & Cases, McGraw Hill (India), New Delhi.

T2: Bhattacharya, D.K.: Human Resource Management.

T3: SubbaRao, P.: Essential of HRM and Industrial Relations.

T4: Memoria, C.B.: Personnel Management.

Reference Book(s) & other resources:-

1. Monappa, Arun: Managing Human Resource.

2. Monoppa & Saiyadain: Personnel Management, Tata McGraw Hill, New Delhi.

3. Patnayak, Biswajeet: Human Resource Management, Ed. 3rd, 2006, PHI, New Delhi.

4. Armstrong, Michael: A handbook of HRM practice, Kgan Page Limited, London.

5. Rao, VSP: Human Resource Management: Text and Concept, Excel Books, New Delhi.

Modes of Examination: Assignment/Quiz/Project/Presentation/Written Exam

Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	30	20	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and Pos		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	To develop the understanding of the concept of human resource management and to understand its relevance in organizations	**PO3, PO2, PSO1**
CO2	To develop necessary skill set for application of various HR issues.	**PO1,PO2, PO3, PO 6, PSO2**
CO3	To analyse the strategic issues and strategies required to select and develop manpower resources.	**PO2, PO4, PO 3, PSO1**

CO4	To integrate the knowledge of HR concepts to take correct business decisions.	**PO4, PO6, PO7, PSO2**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modem IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO 8
OBH11012	Human Resource management	3	2	2	1	1	3	-	1

1=weakly mapped
2= moderately mapped
3=strongly mapped

FAC11007	Financial Management	L	T	P	C
Version 1.0	Contact Hours – 60	3	1	0	4
Pre-requisites/Exposure	Basic knowledge of finance				
Co-requisites	--				

Course Objectives:

1. To develop an understanding of the concept and management of finance
2. To make the students familiar with the principles and practices in Financial Management relating to Investment decisions
3. To make the students familiar with the principles and practices in Financial Management relating to Financing decisions
4. To make the students familiar with the principles and practices in Financial Management relating to Dividend decisions

Course Outcomes

On completion of this course the students will be able to:

CO 1: **understand** fundamentals of Finance and the concept of Time Value of Money
CO 2: **understand** the concept of Capital, its different types, cost and structure
CO 3: **know** the concept and theory of Leverages
CO 4: **develop** an idea on the Working Capital management
CO 5: **develop** knowledge on Capital Budgeting techniques
CO 6: **understand** the Dividend Policy including models and practices

Course Description

This course enables the students to learn the basics of finance and working capital.

Course Structure

Unit-I: (9 L)

Theories of Finance, Meaning of Financial Management, Key elements of Financial Management, Objectives of Financial Management, Functions of Financial Manager, Changing Scenario of Financial Management in India.

Time Value of Money: Long-term sources of finance; Time value of Money, Present Value, Future Value, Compound Value and Present Value Table.

Unit-II: (9 L)

Cost of Capital and Capital Structure: Meaning of Cost of Capital, Components and determination of Cost of Capital - (i) Cost of Debt (debentures & loans) Capital, (ii) Cost of Equity Capital, (iii) Cost of Preference Capital; Weighted Average Cost of Capital; Marginal Cost of Capital.

Capital Structure: Meaning and definition of Capital structure, theories of capital structure, EPS-EBIT Analysis; Net Income (NI) Approach; Net Operating Income (NOI) Approach; Traditional Approach; Modigliani Miller (M-M) Approach.

Unit-III: (6 L)

Leverage: Leverage Analysis; Meaning of Risk; Meaning of Business Risk; Meaning of Financial Risk; Meaning of Leverage; Financial Leverage; Operating Leverage; Combined Leverage.

Unit-IV: **(7 L)**

Working Capital Management: Working Capital: Meaning, Purposes, Need for working capital; Factors determining the Working Capital; Working Capital Cycle; Estimation of Working Capital; Sources of Financing Working Capital.

Unit-V: **(7 L)**

Capital Budget Estimation, Investment Appraisal Techniques: Payback Period, Accounting rate of return, Net Present Value, Internal Rate of Return, Profitability Index, Discounted Pay Back Period, Importance of capital budgeting, Limitations of capital budgeting.

Unit-VI: **(7 L)**

Dividend and its Retention Decision: Meaning of Dividend, Dividend policy, Types of Dividend, Factors affecting Dividend policy, Determinants of Dividend Policy; Dividend Retention; Gordon's Model of Dividend Policy, Walter's Model of Dividend Policy.

Suggested Readings:

1. Khan, M. Y. and P. K. Jain, Financial Management: Text and Problems, Tata McGraw Hill

2. Srivastava, Rajiv, and Anil Mishra, Financial Management, Oxford University Press, UK

3. Pandey, .I. M., Financial Management, Vikas Publications UNCTAD Reports.

4. Chandra, P., Financial Management-Theory and Practice, Tata McGraw Hill

Modes of Examination: Assignment/Quiz/Project/Presentation/Written Exam

Components	Internal	Mid Term	End Term
Weightage (%)	30	20	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs) / Program Specific Outcomes (PSOs)

Mapping between COs and POs/PSOs		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	**understand** fundamentals of Finance and the concept of Time Value of Money	**PO2, PO3, PSO2**
CO2	**understand** the concept of Capital, its different types, cost and structure	**PO2, PO3, PSO2**
CO3	**know** the concept and theory of Leverages	**PO2, PO2, PSO6**
CO4	**develop** an idea on the Working Capital management	**PO3, PO4, PSO2, PSO9**
CO5	**develop** knowledge on Capital Budgeting techniques	**PO3, PO4, PSO2, PSO6**
CO6	**understand** the Dividend Policy including models and practices	**PO4, PSO2, PSO6**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modem IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO 8
FAC11045	Financial Management		3	3	3	-	-	-	-

1=weakly mapped
2= moderately mapped
3=strongly mapped

ECO11011	Indian Economy	L	T	P	C
Version 1.0	Contact Hours – 60	3	1	0	4
Pre-requisites/Exposure	10+2 passed from any recognized Board or equivalent				
Co-requisites	--				

Course Objectives

The primary objective of this course is to provide a macroeconomic understanding of the Indian Economy since Independence. It begins with a discussion of the economic backdrop of the Indian Economy at the time of Independence and goes on to examine major dimensions of the economy's transformation both in its dirigisme and liberal phases while also engaging with the reasons for the transition from the one to the other. This course will be relevant to the students in terms of the overall Indian economic experience since independence. The basic trajectory of Indian economic development is to be covered with special emphasis on the shift from a mixed economy towards market orientation and the effect of the reforms on it.

Course Outcomes

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

CO1. **Explain** the economic development strategy of India since Independence.
CO2. **Understand** the importance of planning undertaken by the government of India, have Knowledge on the various objectives, failures and achievements of planning.
CO3. **Illustrate** the de-industrialisation process and emergence of modern industries and service sector.
CO4. **Analyse** the globalization process, reform policies and its diverse ramifications on the Indian economy.

Course Content

Unit I: [7 HRS]
Indian Economy at the time of Independence

Features of Indian Economy around 1947-1950 and characteristics of economic underdevelopment of India (with reference to colonial rule of India).

Unit II: [8 HRS]
Planning: Evolution of India's Development Goal and Strategy
The background and Structure of Indian Planning, Structural Constraints and India's development strategy – Choice of industrialization strategies – public vs. private sector, capital goods versus consumer goods – Mahalanobis Plan Model (basic argument), import substitution vs. export promotion strategy.

Agriculture-industry relationship – demand side and supply side linkages– agriculture-industry terms of trade - food crisis of the 1960s and imperatives for agricultural growth, genesis of green revolution – fourth plan (basic argument).
Poverty Eradication, foreign aid and self-reliance – Fifth Five Year Plan Model (basic argument); Regional inequality in India – causes; policies for balanced regional development; Planning deficiencies and its abandonment– 7th five-year plan and Indian economic crisis.

Unit III: [7 HRS]

New Reform Policy

Context, Liberalization, Market and state (introduction), Privatisation, Disinvestment policy, consequences, Globalization, GATT and Multilateral Trade Negotiations, WTO agreements, MNCs and FDIs, impact on growth and employment (special emphasis on education sector in the post reform period)

Unit IV: [9 HRS]

Production and distribution:

Agriculture- Characteristics, Land Reforms, Evaluation, Green Revolution, Agricultural policies and pricing, rural credit and Institutionalization.
Industry- Structure and composition of Industry – issues of concentration, large vs small industry – industrial location, small scale reservation policy, trends and patterns of industrial growth, industrial Policies – industrial licensing system.
Growth of the Service Sector, Inclusive development; Food security, Food Procurement and Public Distribution System.

Unit V: [7 HRS]

Trade and Finance:

Foreign trade regime, protection and foreign competition, Productivity; import substitution versus export Competitiveness, effect on export competitiveness, foreign policy in the post-liberalization period.
Finance- Nationalisation, fixed vs. Flexible exchange rate system, Privatisation, foreign capital, land acquisition, SEZ.

Unit VI: [7 HRS]

Second Generation Reforms, Post Crisis Policies

The trends and pattern of employment and wages in India – informalisation and tertiarization of employment - problems of unemployment and under-employment in the context of second generation reforms, public sector major reforms post 2014.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia

- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Peer Tutoring
- Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

Core Text

T1. Indian Economy, S. K. Mishra, V. K. Puri, Himalaya Publishing House, 18th edition (2000)
T2. Indian Economy: Performance and Policies. Uma Kapila. Academic Foundation; 15th Revised edition (2015)

Reference Books

R1. The Indian Economy: Problems and Prospects. Bimal Jalan (ed.); Penguin
R2. Indian Economy. A.C. Fernando. Pearson
R3. S Chakraborty. 1987. Development Planning: The Indian Experience. Clarendon Press.
R4. Vaidyanathan A.1994. Performance of Indian Agriculture since Independence in Kaushik Basu (ed.) Agrarian Question, Oxford University Press.
R5. C D. Wadhwa. Some problems of India's Economic Policy, Tata McGraw Hill. R6. J. Sachs, A Varshney and N Bajpai (ed). India in the Era of Economic Reforms. Oxford University Press.
R7. I, Judge Ahluwalia. 1985. Industrial Growth in India since the Mid-sixties. Oxford University Press.
R8. PC Joshi. 1975. Land Reforms in India: Trends and Perspectives. Allied Publishers: New Delhi.
R9. Pramit Chaudhuri. 1979. Indian Economy: Poverty and Development. George Allen and Unwin, London.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Program Outcomes
CO1	**Explain** the economic development strategy of India since Independence	PO1, PO5, PO6, PO8
CO2	**Understand** the importance of planning undertaken by the government of India, have Knowledge on the various objectives, failures and achievements of planning.	PO1, PO4, PO5, PO8
CO3	**Illustrate** the de-industrialisation process and emergence of modern industries.	PO1, PO4, PO5
CO4	**Analyse** the globalization process and its diverse ramifications on the Indian economy.	PO1, PO4, PO5, PO6, PO7, PO8

MTH11514	**BUSINESS MATHEMATICS**	**L**	**T**	**P**	**C**
Version 1.1	**Contact Hours - 60**	**3**	**1**	**0**	**4**
Pre-requisites/Exposure	School level Mathematics				
Co-requisites					
Academic year	2020-21				

1=weakly mapped
2= moderately mapped
3=strongly mapped

Course objectives:

1. To learn fundamentals, theory, and methods of basic mathematics to be used in simple Business/Economics and real-life problems.

		Understanding of basic knowledge in the different fields of business, commerce and economics in terms of concepts and principles.	Develop knowledge on fundamentals of micro and macro and its relationship with a country's economy	Acquire basic knowledge on application of mathematical and statistical tools in economics	Learn different theories of development economics and its contemporary issues in global context	Acquire knowledge on different areas of application of microeconomics and macroeconomics, eg. Economics of Health and Education, Resource Economics, Industrial Economics, etc.	Develop problem solving skills through assigned practical projects in most of the courses.	Become employable in various private companies and government job at the end of programme	To foster thinking minds that are sensitive to societal needs & issues, thus ensuring a holistic development of the students
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO11011	Indian Economy	3			3	2	2	1	3

2. To skill students to compute the solution of simple mathematical problems in the set theory, linear and nonlinear equations, matrix methods, differentiation and integration.
3. To help students to understand the use of various mathematical tools for solving simple Business/Economics and marketing related problems.

Course Outcomes:

On completion of this course, the students will be able to:

CO1: **Define** various terms related to the theory of sets and its properties with Venn diagrams representations. (R)

CO2: **Illustrate** the solution of linear, nonlinear equations and the problems related to the supply and demand analysis. (U)

CO3: **Find** the inverse of a matrix, determinant, and the solution of a system of linear equations arises from simple business/economics applications. (R)

CO4: **Define** the percentages, index numbers, interests, and investment appraisal. (R)

CO5: S**ummarize** the theory and methods to determine the derivatives of a function of one and several variables for the extreme value of a function. (U)

CO6: **Find** indefinite and definite integration. (R)

Course Description:

The course is designed for students of economics, business studies, and management. It assumes very little prerequisite knowledge, so the topics of this course can be understood by students who have not undertaken a mathematics course for some time. The focus of this course is to develop the fundamental knowledge, understanding of basic mathematical tools to be used in other subjects easily. This course comprises the set theory, linear and nonlinear equations, and its applications in simple business and economics problems like supply and demands analysis, modelling of revenue etc. Also, this course covers matrix algebra and solution of a system of equations with applications in Business, and definite and indefinite. To teach this course, audio-video lecture, presentation, and assignments to be provided. Students will strongly grab the basic concepts of the course via solving exercise and interaction with course instructors.

Course Syllabus:

Unit- I **8 Hrs**

Set theory: Theory of sets- meaning, elements, types, presentation and equality of sets, union, intersection, compliment & difference of sets, Venn diagrams, Cartesian product of two sets, applications of set theory.

Unit- II **10 Hrs**

Linear equations**:** graphs of linear equations, algebraic solution of simultaneous linear equations, supply and demand analysis, algebra, modeling of supply and demand analysis, national income determination.
Non-linear equations: quadratic, exponential and logarithmic equations, modeling of revenue, cost and profit.

Unit- III **10 Hrs**

Matrices:Types, properties, addition, multiplication, transpose and inverse of matrix; properties of determinants, solution of simultaneous linear equations, differentiation and integration of standard algebraic functions, business applications of matrices.

Unit- IV **5 Hrs**

Mathematics of finance: percentages, index numbers, and interests, compound interest, investment appraisal.

Unit- V **10 Hrs**

Differentiation: Derivative of a function, rules of differentiation, marginal functions and elasticity, optimization of economic functions, partial differentiation, functions of several variables, partial marginal functions and elasticity, Lagrange multipliers.

Unit- VI **3 Hrs**

Integration: Indefinite integration, definite integration.

Test book readings:

1. Ian Jacques, Mathematics for and Economics and Business (Fifth edition), Pearson India.
2. D.C. Sancheti, V.K. Kapoor, Business Mathematics,.

Reference Book:

1. J.D. Gupta, P.K. Gupta, Man Mohan, Mathematics for Business and Economics, Tata McGraw Hill Publishing Company Ltd.
2. Q. Zameeruddin, V. K. Khanna, S. K. Bhambri, Business Mathematics (Second Edition), Vikas Publishing House PVT LTD.

Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination
Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	30	20	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs

SDS11506		Elective Statistics-I	L	T	P	C
Version 1.0		Contact Hours – 75	5	1	0	5
Pre-requisites/Exposure		12th level Mathematics				
Co-requisites						

Course Outcomes (COs)		Mapped Program Outcomes
CO1	**Define** various terms related to the theory of sets and its properties with Venn diagrams representations. (R)	PO1, PO2,PSO1
CO2	**Illustrate** the solution of linear, nonlinear equations and the problems related to the supply and demand analysis. (U)	PO1, PO2,PO6, PSO1
CO3	**Find** the inverse of a matrix, determinant, and the solution of a system of linear equations arises from simple business/economics applications. (R)	PO1, PO2,PO6,PSO1
CO4	**Define** the percentages, index numbers, interests, and investment appraisal. (R)	PO1, PO2,PO6,PSO1
CO5	**Summarize** the theory and methods to determine the derivatives of a function of one and several variables for the extreme value of a function. (U)	PO1, PO2,PO6,PSO1
CO6	**Find** indefinite and definite integration. (R)	PO1, PO2,PSO1

1=weakly mapped
2= moderately mapped
3=strongly mapped

Course Objectives

The objective of this course for the graduate student of economics is:

1. To provide a basic understanding of statistical data with preparation and presentation of data.
2. To develop the statistical concepts of the discrete and continuous variable or data and its various central and dispersion measures, regression, and correlation analysis with application in simple real life examples.

Course Outcomes

On completion of this course, the students will be able to:

CO1. **Define** different types of statistical data, attributes, and variables (discrete and continuous) with frequency distribution. (r)

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO 1
MTH11514	**BUSINESS MATHEMATICS**	3po	3				3		3

CO2. **Find** various measures of central tendency and dispersion for grouped and ungrouped data, regression lines and correlation coefficients. (r)

CO3. **Summarize**, collect**,** and present the different types of data graphically and numerically. (U)

CO4. **Compare** the results obtain from various central and dispersion measures, regression, and correlation Analysis. (U)

CO5. **Utilize** the concept of correlation and regression and its properties to obtain the solution of simple business/economics problems. (Ap)

Course Description

Knowledge of basic statistics and methods is necessary to work on statistical data for the beginners of economics students. This course gives an idea and understanding about the several statistical methods and measures are used to extract the information from various types of data comes from statistical problems. This course deals with data collection, preparation and presentation with frequency distribution, various measures of central tendency and dispersion, correlation, regression analysis, and its application in business/economics problems. Classes will be conducted by lecture as well as power point presentation, audio visual session as per requirement. The tutorials will familiarize the students with practical problem-solving techniques guided by the course coordinator. Students will strongly grab the basic concepts of the subject via exercise and discussions with the coordinator.

Course Content

Unit-I **10Hours**

Collection and Scrutiny of Data

Statistical data: Primary Data and Secondary Data, Collection of Data, Presentation of data, tabular representation of data, Scrutiny of Data.

Unit-II **14 Hour**

Frequency Distribution

Attribute and variable, Discrete variable and continuous variable, Frequency Distribution of an Attribute, Frequency Distribution of a variable, Case of a discrete variable, Case of a continuous variable, Graphical Representation of a frequency Distribution, Frequency curve.

Unit-III **8 Hours**

Presentation of Data

Frequency data and non-frequency data, Textual presentation of Data, Tabulation of Data, Diagrammatic presentation of Data (Bar chart, pie diagram, Histogram, Ogives).

Unit-IV **10 Hours**

Measures of Central Tendency:

Meaning of Central Tendency, Common measure of Central Tendency, Requirements of an ideal Average, Comparison of Mean, Median and Mode, Geometric Mean and Harmonic Mean, weighted Means.

Unit-V **12 Hours**

Measures Of Dispersion:

Range, Mean Deviation, Standard Deviation, Quantiles and Percentiles, Quantile Deviation, Comparison of the Measures of Dispersion, Some important relations, Measures of relative Dispersion.

Unit-V **10 Hours**

Moments and Measures Of Skewness and Kurtosis:

Moments, Relationship between central and ordinary moments, Skewness, Kurtosis, Some important relations.

Unit-VI **11 Hours**

Correlation and Regression:

Correlation: Scatter diagram, Karl-Pearson's correlation, concurrent deviation method, rank correlation, uses of correlation in business regression, regression lines, regression coefficients, properties of regression coefficients, Use of regression in business problems.

Text Books

T1. A.M. Goon, M.K. Gupta and B. Dasgupta (2005): *Fundamentals of Statistics*, Vol. I, 8th Ed., World Press, Kolkata

T2. S.C. Gupta and V.K. Kapoor (2007): *Fundamentals of Mathematical Statistics*, 11th Ed., Sultan Chand and Sons.

Reference book

R1. N. G. Das (2009): Statistical Methods, combined edition (vol I & II), McGraw Hill Education (India).

Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination
Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	30	20	50

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	Mapped Program Outcomes

CO1	**Define** different types of statistical data, attributes, and variables (discrete and continuous) with frequency distribution.	**PO1, PO3,PO7**
CO2	**Find** various measures of central tendency and dispersion for grouped and ungrouped data, regression lines and correlation coefficients.	**PO1,PO3,PO7**
CO3	**Summarize**, collect**,** and present the different types of data graphically and numerically.	**PO1, PO3, PO7**
CO4	**Compare** the results obtain from various central and dispersion measures, regression, and correlation Analysis.	**PO1, PO3, PO7**
CO5	**Utilize** the concept of correlation and regression and its properties to obtain the solution of simple business/economics problems.	**PO1, PO3, PO7, P08**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
SDS11506	Elective Statistics -I	3		3				3	1

1=weakly mapped
2= moderately mapped
3=strongly mapped

SOC11012	SOCIOLOGY III - SOCIOLOGICAL THEORIES	L	T	P	C
Version 1.0	Contact Hours – 75	5	1	0	6
Pre-requisites/Exposure	Introductory level knowledge of Sociology				
Co-requisites	--				

Course Objectives

1. To understand what accounts for the emergence of the academic discipline of sociology.
2. To understand how the major classical theorists developed the academic discipline of sociology.
3. To understand distinctiveness of sociological approaches among the other social sciences.
4. To apply classical theories to contemporary social phenomenon
5. To analyze and to apply sociological perspectives and sociological imagination to understand social issuesreformulate the theories for research work.

Course Outcomes

On completion of this course, the students will be able to—

CO1. **Identify** the philosophical, economic and political developments that lead to the development of classic social theory.

CO2. **Demonstrate** an understanding of the major concepts used by Marx, Weber, Durkheim and Pareto for their sociological analysis.
CO3. **Apply** sociological theory to contemporary issues.
CO4. **Identify** sociological perspectives for analysing social events.
CO5. **Construct** sociological imagination for understanding social issues and events.

Course Description: This course introduces the students with the critical understanding about the concept of what accounts for the emergence of the academic discipline of sociology. It helps to understand how the major classical theorists developed the academic discipline of sociology. It also helps to apply classical theories to contemporary social phenomenon.Students will be able to identify the philosophical, economic and political developments that lead to the development of classic social theory. Secondly, students will demonstrate an understanding of the major concepts used by Marx, Weber, Durkheim and Pareto for their sociological analysis. Lastly, students will be able to apply sociological theory to contemporary issues.

Course Content

Unit- I **15 lecture hours**

Historical Socio-Economic background of the emergence of sociology, Enlightenment, French Revolution and Industrial revolution – its social, economic and cultural impact.

Unit-II **15 lecture hours**

August Comte – His biography and relation to his theories namely- Positivism, Hierarchy of sciences, Law of Three Stages and its critics.

Hebert Spencer-His biography and relation to his theories namely-Evolution and Organism Theory of Society. Typology of Societies, Evolutionism, Its relation to contemporary society.

Unit-III **15 lecture hours**

Karl Marx - His biography and relation to his theories namely-Marx's theory of social change, Historical Materialism, Dialectical Materialism, Classes and Class conflict, Alienation.Its relation to contemporary society and criticism .

Unit-IV **10 lecture hours**

Emile Durkheim - His biography and relation to his theories namely- Social Facts, Division of Labour, Theory of Suicide, Theory of Religion. Its relation to contemporary society and criticism.

Unit- V **10 lecture hours**

Max Weber - His biography and relation to his theories namely-Ideal Types; Theory of social action; Protestant Ethic and the Spirit of Capitalism. Theory of Authority; Theory of Bureaucracy. Its relation to contemporary society and criticism.

Unit VI **10 lecture hours**

Vilfredo Pareto - His biography and relation to his theories namely-
Classification of logical and non-logical actions Residues; Circulation of Elites.Its relation to contemporary society and criticism.

Text Books

1. Aron, Raymond: Main Currents in Sociological Thought, Vol. I and II,Penguin, Chapters on Marx, Durkheim and Weber. 1965 – 1967.

2. Bendix, Rinehard – Max Weber, An Intellectual Portrait (For Weber) Double Day. 1960.

3.Coser, L. A.: Masters of Sociological Thought, New York : Harcourt Brace, pp.43-87, 129-174, 217-260. 1977

4. Nisbet – The Sociological Tradition. Heinemann Educational Books Ltd., London. 1966.

5. Zeitlin Irvin – Ideology and the Development Sociological Theory.Prentice Hall. 1981.

6.Giddens, Anthony: Capitalism and Modern Social Theory – An analysis of Writings of Marx, Durkheim and Weber, Cambridge University Press, Whole Book. 1997.

7.Hughes, John A., Martin, Peter, J. and Sharrock, W. W. Understanding Classical Sociology – Marx, Weber and Durkheim, London: Sage Publications, Whole Book.1995.

Modes of Examination: Assignment/Quiz/Film review (documentaries)/ Project/Group Discussion/ Presentation/Extempore/Written Exam

Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	**Identify** the philosophical, economic and political developments that lead to the development of classic social theory.	**PO1, PO2, PO3, PO4**
CO2	**Demonstrate** an understanding of the major concepts used by Marx, Weber, Durkheim and Pareto for their sociological analysis.	**PO1, PO2, PO3, PO4**
CO3	**Apply** sociological theory to contemporary issues.	**PO1, PO2, PO3, PO4**
CO4	**Identify** sociological perspectives for analysing social events.	**PO1, PO2, PO3, PO4**
CO5	**Construct** sociological imagination for understanding social issues and events.	**PO1, PO2, PO3, PO4, PO8**

		Understanding of basic knowledge in the different fields of business, commerce and economics in terms of concepts and principles.	Develop knowledge on fundamentals of micro and macro and its relationship with a country's economy.	Acquire basic knowledge on application of mathematical and statistical tools in economics.	Learn different theories of development economics and its contemporary issues in global context.	Acquire knowledge on different areas of application of microeconomics and macroeconomics, eg. Economics of Health and Education, Resource Economics, Industrial Economics, etc.	Develop problem solving skills through assigned practical projects in most of the courses.	Become employable in various private companies and government job at the end of programme	To foster thinking minds that are sensitive to societal needs & issues, thus ensuring a holistic development of the students
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
SOC11012	Sociological Theories	3	3	3	3	-	-	-	1

1=weakly mapped
2= moderately mapped
3=strongly mapped

SOC14100	Adamas Foundation (Community Service)	L	T	P	C
Version 1.0		-	-	-	1
Pre-requisites/Exposure	Knowledge of Basic English				
Co-requisites	Knowledge of Basic Computer Skills				

Course Objectives

5. To familiarise the students on the concept 'giving back to the society'.
6. To familiarize the students on the issues faced by marginalized communities.
7. To provide an experiential platform to the students on any one or two issues as an internship.

Course Outcomes

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

CO1: Understand the concept of social responsibility through an internship.
CO2: Acquire hands on experience in 'giving back to the society' through the concept of social responsibility through an internship.

Catalog Description

Along with Intelligent Quotient, it is important for students to enhance their Emotional Quotient as well. The Social Internship offers opportunity to the student to be empathetic towards social issues facing our society. To help and support the affected community / cause through a field internship is the essence of the course in 'giving back to the society'.

Course Content

Unit I:

Introduction to the course. A brief on social issues facing the society with both global and Indian examples.

Unit II:

Minimum 24 hours of field work on a social issue and helping the marginalized / affected community / cause with photographs and testimonies.

Unit III:

Submission of individual reflection on the social service rendered.

The benefits that accrue to the students are

A.) Subjective

1. Psychosomatic benefits: Volunteering increases overall life satisfaction and also helps to relive stress and acts as an anti-depressant.
2. Intellectual benefits: Enhances knowledge through new experiences, and develops communication skills.
3. Career benefits : Enhances career prospects by acquisition of work-related skills, builds good references for employers and provides a forum to network with future potential employers. It

also The experience allows gained helps students to take up leadership positions. Letters of recommendation can also be easily sought. Research shows that students who indulge in volunteer word perform better in studies as it invigorates their passion for learning

4. Personal benefits : Real world skills like leadership, problem-solving, collaboration with others, time management and communication skills, learn patience and empathy.
5. Connect learning to real world and enables deeper and lifelong learning.

B.) **Community**

1. Collective benefits: Strong interpersonal bonds are created, and leads to increased civic and social awareness and responsibility.

Further Reading:

1. Tadevosyan, Gohar & Schoenhuth, Michael. Participatory Research Approach : Principles, Challenges and Perspectives. http://ysu.am/files/01G_Tadevosyan_M_Schoenhuth.pdf
2. Bergold, Jarg & Thomas Stefan. Participatory Research Methods: A Methodological Approach in Motion http://www.qualitative-research.net/index.php/fqs/article/view/1801/3334

Plan of Work

1. Reading on social issues facing the society with both global and Indian examples.
2. Selecting an issue where the student wishes to contribute and wants to make a difference.
3. Areas - The internship may be broadly completed by getting in touch with NGO in your city / town / Police / Municipal Corporation / Local Gram Panchayat / Hospital / State Health Department / Women & Child Development Centre / CSR departments of Corporates /school / Old Age Home / Orphanage / Literacy Drive / Aanganwadi Centres / etc.
4. **Online Discussion –** Through discussion, students elaborate their preferred area of work with reference to the Global Scenario and India. Reason for choosing that area also needs and resources of the people in their area of Social Internship and also submit the testimonials, which include signature of the authority where students initiated their work, or the signature of the authority in whose area students are currently working or photographs of work (photographs must include students working).
5. **Final Report Submission** - Submission of the Testimonials include signatures of the authorities you have worked with, or the signature of the authority in whose area you have worked or photographs of your work (photographs must include you working). Students' accomplishment in their area of operation along with the major successes student experienced and major challenges faced.
6. Students will submit the complete elaborated report along with testimonials and completion certificate in the form of signed Template

- The registration for all students will open twice, during winter and summer breaks. They may enroll for the internship in either of the two breaks.
- The student will have to submit a continuous record of their 10 to 15 days internship in the form of photographs and testimonies (wherever required).

IDP14001	**Inter-Disciplinary Project**	**L**	**T**	**P**	**C**
Version 1.0		**-**	**-**	**-**	**3**
Pre-requisites/Exposure	**Knowledge of Basic English**				
Co-requisites	**Knowledge of Basic Computer Skills**				

Course Objectives

This course will develop a student's knowledge of and appreciation for the

- interdisciplinary nature of knowledge and learning
- importance and value of integrating knowledge and perspectives from multiple disciplines as a means to evaluating and understanding complex topics, problems, issues, phenomena, and events
- competencies learned during the educational process and to apply these competencies in a real-world application

Course Outcomes

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

CO1. recognize the unique advantages of integrative research and learning
CO2. understand the fundamentals of research methods and practices of various academic disciplines
CO3. demonstrate an understanding of current issues and concerns
CO4. realize the importance of ethics in research process
CO5. understand the inter-disciplinary systems of research documentation

Typical Progress Roadmap

- After discussion with the Project Advisor(s), each student shall prepare an initial outline of their assigned project indicating the major sections of discussion, list the principal research sources for each section, and explain the overall objective of the project, including a justification of the interdisciplinary nature of the work.
- Each student shall meet with the Project Advisor(s) regularly as per the weekly Time-Table. Other meetings may be scheduled at the discretion of the Project Advisor(s) at mutually agreed upon timings.
- Typically, the progress will include a combination of industrial and academic mentoring , self study sessions, case studies, trend studies, presentation by students, interactive sessions, industrial visits etc.
- Regular submission of progress reports shall be required of each student-group as notified through the Project Advisor(s) from time to time.

Mode of Evaluation

Students will be evaluated by team participation and a team presentation at the end of the project. Interactive & continuous, task/assignment- based evaluation methodology will be applied for the course.

Semester IV

ECO11012	Development Economics	L	T	P	C
Version 1.0	Contact Hours – 60	3	1	0	4
Pre-requisites/Exposure	10+2 passed from any recognized Board or equivalent				
Co-requisites	--				

Course Objectives:

This course aims at a basic introduction to the ideas of growth and development. A chronological development of the measures of development and the major theoretical works is to be attempted to make it clear to the students that development is a multidimensional process and need to be addressed accordingly. Concept of poverty, inequality and also to learn about commonly used inequality and poverty measures are also discussed. Finally, the recent advances in the direction of free trade as a vehicle of development are to be discussed.

Course Outcomes

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

CO1. **Understand** the core economic principles, concepts and theories of modern economic analysis and various economic development issues.

CO2. **Explain** the interplay between markets, institutions and income distribution in causing and perpetuating underdevelopment; the inequalities between rich and poor countries and how the differences have evolved over time.

CO3. **Analyze** effects of economic growth on inequality and poverty ; the empirical evidence on the patterns of economic development.

CO4. **Assess** the effectiveness of various policies in combating underdevelopment.
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Course Content

Unit-1: Concepts and measures of development (15 Hrs)

Nature, Questions and Values of Development, Meanings of development – economic growth, redistribution form growth and capabilities approach to development, objectives of development. Measures of development- purchasing power parity and per capita income as an index of development, difference between growth and development, human development index, characteristics of a developing economy.

Unit-2: Development theories **(15 Hrs)**

Underdevelopment as a coordination failure, multiple equilibria, different approaches- vicious cycle of poverty, circular causation, the Big Push, balanced and unbalanced growth;
Dual economy Models- Lewis, Harris-Todaro, Trap models- Nelson and Leibenstein, Choice of technique in a labour suplus economy, Two gap model, Dualism.

Unit 3: Development- Population, Inequality and Poverty **(15 Hrs)**

Concepts of Population: definitions of fertility, mortality, birth rates, death rates, fertility rate, life expectancy, infant mortality rate, youth dependency ratio; Theory of demographic transition.
Meaning of inequality, Measures of Inequality - Lorenz Curve, Range, Coefficient of variation, Gini-coefficient, Kuznet's Inverted U hypothesis.
Poverty, relative and absolute deprivation with respect to income, Poverty line, Poverty measures– Head count ratio, Poverty gap ratio, Income gap ratio, Human Poverty Index.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment/Quiz/Project/Presentation/ Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

Text Books

T1. Thirlwall,*Growth and Development*, Palgrave McMillan; 8th edition (2010)

T2. Todaro, and Smith. *Economic Development*, Pearson India; 10th edition (2011)

Reference Books

R1. D. Ray,*Development Economics*, Oxford University Press; 1st edition (1999)

R2.S. Gupta, and A. K. Mohapatra. *Recent Economic Growth in India: Contemporary Issues.*Prateeksha Publications (2011)

R3. K. Basu. *Analytical Development Economics: The Less Developed Economy Revisited*. Oxford University Press.

R4. G.M. Meier and J.E. Rauch.*Leading Issues in Economic Development*. Oxford University Press. (2005)

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and Pos		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	**Understand** the core economic principles, concepts and theories of modern economic analysis and various economic development issues. .	**PO1,PO3**
CO2	**Explain** the interplay between markets, institutions and income distribution in causing and perpetuating underdevelopment; the inequalities between rich and poor countries and how the differences have evolved over time.	**PO4, PO5**
CO3	**Analyze** effects of economic growth on inequality and poverty ; the empirical evidence on the patterns of economic development.	**PO6,PO7**
CO4	**Assess** the effectiveness of various policies in combating underdevelopment.	**PO2, PO8**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO11012	Development Economics	3	3	2	1	2	3	3	1

1=weakly mapped
2= moderately mapped
3=strongly mapped

EIC11010	**Entrepreneurship Development**	**L**	**T**	**P**	**C**
Version 1.0	**Contact Hours - 60**	3	1	0	4
Pre-requisites/Exposure	Basic understanding of business, innovation and marketing				
Co-requisites	--				

Course Objectives:

1. To expose students about entrepreneurship and its importance in every sector of economy since it opens up the door for enterprise creation in every sector of business.
2. Skilling up youth is to encourage them to set up their own micro/small enterprises or engage themselves productively in larger enterprises.
3. Creating an entrepreneurial eco-system essential in our country.
4. Developing an entrepreneurship movement through its education.

Course Outcomes:

On completion of this course, the students will be able to:

CO1. Understanding the basic fundamentals of entrepreneurship.
CO2. Recognise the importance of having strong entrepreneurial characteristics.
CO3. Process of business idea generation and converting the idea into a business model.
CO4. Role of government agencies that renders support in terms of policies, assistances etc.
CO5. Sustenance and growth of the enterprises by start-up entrepreneurs.

Catalogue Description

Entrepreneurship is generally understood to be the practice of starting new business organisations in response to perceived opportunities. It results in establishment of small one-person businesses as also large organisations capable of creating many job opportunities. Entrepreneurship has been identified as one of the major trends shaping business, economy and even society. The modern study of entrepreneurship owes a lot to the pioneering efforts of Joseph Schumpeter and other economists. Similarly, Frank Wright, Peter Drucker, and many others have successfully contributed to the growth of entrepreneurship theory, practice and research. In recent times, entrepreneurship and entrepreneurs have received a lot of attention from academicians, writers, media, and general public. The achievements and

contributions of entrepreneurs have been acknowledged by society. Many entrepreneurs are honoured and awarded for their achievements nationally as well as internationally.

Course Content:

Module 1: 8 Lecture Hours

Introduction - Understanding the meaning of Entrepreneurial ship - Characteristics of an Entrepreneur - Classification of the Entrepreneurs – MSME Classification in India- Entrepreneurial Scene in India - Factors influencing Entrepreneurship.

Module II 7 Lecture Hours

Early Career Dilemmas of an Entrepreneur, The Entrepreneur's Role, Task and personality
A typology of Entrepreneurs: Defining Survival and success, Entrepreneurship as a Style of Management

Module III 9 Lecture Hours

Entrepreneurial growth - Role played by government and Non-Government agencies - EDP's, WBIDC, SIDBI, IDBI, IFCI. Rural Entrepreneurs - Small scale entrepreneurs and Export Entrepreneurs .

Module IV 8 Lecture Hours

Business plan, Business idea generation Techniques - Identification of Business Opportunities - Marketing Feasibility - Financial Feasibility - Technical - Legal - Managerial and Location Feasibility.

Module V 6 Lecture Hours

Project Appraisal - Methods - Techniques - Preparation of Business Plan - Content of a Business Plan - Project Report.

Module VI 7 Lecture Hours

Start of an enterprise - Franchising and Acquisition - Product Strategies - Pricing Strategies - Distribution Strategies - Promotional Strategies. How to be a successful Entrepreneur? Learning to be Successful - Successful entrepreneurs.

Reference Books:

1. Vasant Desai - Dynamics of Entrepreneurial Development and Management. HPH(2019)
2. Khanna - Entrepreneurial Development. S. CHAND (2018)
3. Rajeev Roy- Entrepreneurship, Oxford University Press

Modes of Examination: Assignment/Quiz/Project/Presentation/Written Exam

Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	Understanding the basic fundamentals of entrepreneurship.	**PO1, PO2**
CO2	Recognise the importance of having strong entrepreneurial characteristics.	**PO1,PO2, PO3, PSO1**
CO3	Process of business idea generation and converting the idea into a business model.	**PO1, PO2, PO3, PO4, PO5, PO4,**
CO4	Role of government agencies that renders support in terms of policies, assistances etc.	**PO1, PO5, PO7, PSO2**
CO5	Sustenance and growth of the enterprises by start-up entrepreneurs.	**PO11, PO12**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO 8
EIC11001	Entrepreneurship Development	3	2	2	1	1	3	-	1

1=weakly mapped
2= moderately mapped
3=strongly mapped

ECO11014	**Money, Banking and Financial Markets**	L	T	P	C
Version 1.0	Contact Hours – 60	3	1	0	4
Pre-requisites/Exposure	ECE 42106 / Building Planning & Materials				
Co-requisites	-				

Course Objectives:

This course is designed to introduce undergraduate economics students to the basic concepts of financial assets, banking, financial markets and financial regulation. This knowledge is useful in competitive examinations. The course also intends to train the learner's mind set to analyse the existing models/frames to resolve an issue. The course plans to teach the intricacies of the interconnected working of various functional divisions of the banks and financial markets such that the students can join industry in positions pertaining to finance, banking and financial markets.

Course Outcomes:

CO1**. Understand** generation of aggregate demand through lending by banks with a focus on investment activities and consequent expansion of the economy's output.
CO2. **Assess** how aggregate output generates income in the hand of households, corporates and the government, a part of which is saved and channelized to the financial sector towards acquisition of financial securities.
CO3. **Develop** the ability to sit in competitive examinations.
CO4 **Develop** the ability to join industry in positions pertaining to finance, banking and financial markets.

Course Content

Unit 1: Introduction to Banking (10 Hours)

- Concept of Financial Intermediaries
- Definition and Functions of Bank
- Structure of the Banking Industry
- Role of Banks in Creation of Money: The Lending Process
- The Money Multiplier Process
- Regulations on Lending

Unit 2: Introduction to Financial Markets (10 Hours)

- Concept of Financial Market
- Money Market vis-à-vis Capital Market
- Concept of Financial Securities and their Credit Rating

- Concept of Issuer and Investor in the Financial Markets
- The role played by financial markets in determination of yields through price discovery
- The Concept and Construct of Yield Curve
- The Role of Yield in Income Determination

Unit 3: Regulator and Regulation (15 Hours)

- Introduction to Central Banking and Monetary Policy
- RBI Regulations on Lending
- Role of CRR and SLR in determining the volume of loans
- Auction and buy back of government securities by RBI in open market operations
- Money Markets Operations by RBI - Repo, Reverse Repo and Marginal Standing Facility
- Role of RBI in creation of a vibrant debt market

Unit 4:International Finance and Monetary Policy (10 Hours)

- The Foreign Exchange Market
- The International Financial System
- Monetary Policy Strategy: The International Experience
- Lessons from Banking and Financial Crises

Reference Books

1. M. S. Shetty, Concrete technology, S. Chand& Co.
2. S. P.Arora, Building construction, Dhanpat Rai & Sons, New Delhi.
3. Dr.Mahesh Varma, Construction Equipment and its Planning and Application, Metropolitan Book Company.
4. R.L.Peurifoy, W.B.Ledbetter, Construction Planning, Equipment, and methods, Tata McGraw Hill.
5. Chitkara, Construction Project Management Planning scheduling and control, McGraw Hill
6. B.L.Gupta, Amit Gupta, Construction Management and Accounts, Standard publishers and Distributors.
7. James.D.Steevens, Techniques for Construction Network Scheduling, McGraw Hill

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring

- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment/Quiz/Project/Presentation/ Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and Pos		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	**Understand** generation of aggregate demand through lending by banks with a focus on investment activities and consequent expansion of the economy's output.	**PO1, PO2, PO4, PO6, PO7, PO8,**
CO2	**Assess** how aggregate output generates income in the hand of households, corporates and the government, a part of which is saved and channelized to the financial sector towards acquisition of financial securities.	**PO1, PO2, PO4, PO6, PO7, PO8,**
CO3	**Develop** the ability to sit in competitive examinations.	**PO1, PO2, PO4, PO6, PO7, PO8,**
CO4	**Develop** the ability to join industry in positions pertaining to finance, banking and financial markets	**PO1, PO2, PO4, PO6, PO7, PO8**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO11014	Money, Banking and Financial Markets	3	3	_	3	_	2	2	1

1=weakly mapped
2= moderately mapped
3=strongly mapped

EVS11113	Environmental Studies	L	T	P	C
Version 1.0	Contact Hours - 30	2	0	0	2
Pre-requisites/Exposure	--				
Co-requisites	--				

Course Objectives:

1. To impart basic knowledge about the environment and its problem.
2. To create awareness and concern about environmental resources protection.
3. To feel connected to the intrinsic relation between humans and the environment, our position in the ecosystem around us.
4. To make the students familiar with the good civic practices and policies pertaining to the environment.
5. Understanding the multidimensional complex nature of environmental problems and policies.
6. To motivate students for active participation in minimizing the environmental damage caused due to our action.

Course Outcomes

On completion of this course the students will be able to:

CO 1: Distinguish between various types of ecosystem dynamics, perceive and appreciate the surrounding nature.

CO 2: Feel connected with the intrinsic relationship between humans and the environment, our position in the ecosystem around us, and the importance of biodiversity.

CO 3: Comprehend the presence of various pollutants, their significance, and impacts, and develop the underlying concepts involved in various air pollution prevention and mitigation measures.

CO 4: Build in-depth knowledge about natural resources including energy resources.

CO 5: Understand the legal framework in our country for safeguarding the environment including pollution prevention, control, management, and wildlife management.

Course Description:

We can survive without everything except food, which includes fuel and other nutrients and oxygen. For these two basic requirements, we must depend on our environment. But, over exploitation of resources, polluting the media around us, has resulted in environmental backlashes of both global and local scales. We are going through the sixth mass extinction event, the Holocene Extinction, which makes studying this subject as a compulsory course even more relevant, to develop the students into responsible citizens of the future.

Detailed syllabus:

Unit I : Resources 10 hrs

Renewable and non-renewable resources; Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people, Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems, Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies, Land resources: Land as a resource, land degradation, soil erosion and desertification, Energy Resources: renewable and nonrenewable energy resources, fossil fuel types and their environmental impact, solar, wind, hydropower, biomass energy and geothermal energy

Unit II: Ecosystems& Biodiversity 5 hrs

Concept of an ecosystem, Structure and function of an ecosystem, Producers, consumers and decomposers, Food chains, food webs and ecological pyramids, Energy Flow

Levels of Biodiversity: genetic, species and ecosystem diversity, Values of biodiversity, India as a mega-diversity nation, Biodiversity hotspots, Threats to Biodiversity, In-situ and Ex-situ conservation of Biodiversity

Unit III: Environmental Pollution 5 hrs

Environmental pollution: types, causes, effects and controls; Air, water and noise pollution, Pollution case studies

Unit IV: Environmental issues and policies 10 hrs

Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents.

Environment Laws: Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act. International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD). Human population growth: Impacts on environment, human health and welfare. Environmental movements: Chipko, Silent valley, Environmental ethics: Role of Indian and other religions and cultures in environmental conservation. Sustainable development, Water conservation, rainwater harvesting, watershed management; its problems and concerns. Environmental communication and public awareness, case studies; Swachh Bharat Mission

Text Books:	
1.	Principles of Environmental Science, 4th edition by Cunningham, W.P. and Cunningham, M.A. (2002), Tata McGraw-Hill Publishing Company, New Delhi
2.	Basic Environmental Engineering & Elementary Biology by Monidranath Patra and Rahul Kumar Singha, Aryan Publishing house

Modes of Examination: Assignment/Quiz/Project/Presentation/Written Exam

3.	Introduction to Environmental Engineering and Science, by Masters, G.M., Prentice Hall of India, Second Indian Reprint.
Reference Books:	
1	Wastewater Engineering: Treatment and Reuse, 4th Edition, Metcalf and Eddy, Inc. McGraw-Hill, Inc., New York, 2002
2	Environmental Engineering", Howard S. Peavy, Donald R. Rowe and George Tchobanoglous, McGraw-Hill Education (India) Private Limited, New Delhi
3	Introduction to Environmental Engineering, 2nd Ed. by Davis, M. L. and Cornwell D. A. McGraw Hill, Singapore.
4	Environmental Sciences: The Environment and Human Impact by Jackson, A.R.W. and Jackson, J.M., , Longman Publishers

Examination Scheme:

Components	**Internal**	**Mid Term**	**End Term**
Weightage (%)	**30**	**20**	**50**

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Distinguish between various types of ecosystems, ecosystem dynamics, perceive and appreciate the surrounding nature.	**PO6, PO5**
CO2	Feel connected with the intrinsic relation between humans and environment, our position in the ecosystem around us, and importance of biodiversity.	**PO5, PO6**
CO3	Comprehend the presence of various pollutants, their significance, and impacts, and develop the underlying concepts involved in various air pollution prevention and mitigation measures.	**PO5**
CO4	Build the in-depth knowledge about natural resources including energy resource.	**PO5**
CO5	Understand the legal framework in our country for safeguarding the environment including pollution prevention, control, management and wildlife management.	**PO5, PO7**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
EVS11113	Environmental studies	-	-	-	-	2	2	2	-

1=weakly mapped; 2= moderately mapped; 3=strongly mapped

SDS11507	Elective Statistics II	L	T	P	C
Version 1.0	Contact Hours -90	5	1	0	6
Pre-requisites/Exposure	Basic Statistics				
Co-requisites	--				

Course Objectives

This course aims to build up the advanced knowledge on the basic statistics. Here students will learn more tools and techniques which are useful for analyzing economic issues in real life. The difference between population and sample, why sampling is required for any study, has to be understood clearly before one delves into statistical analysis. In this paper students will get an idea of sampling theory and techniques, sampling distribution and its different forms, test of hypothesis and also learn business index numbers.

Course Outcomes

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

CO1. **Recall** basic terminologies of sampling, hypothesis testing.

CO2. **Illustrate** sampling distribution of statistics and test of significance for large sample and small sample.

CO3. **Explain** several methods of estimation to estimate population parameters.

CO4. **Classify** several types of index numbers to measure relative changes.

Course Description:

This course introduces basic concepts and techniques statistical theory. It emphasizes the intuitive logic that underlie the theory and techniques, and valid interpretation of the results obtained using the techniques.

This course contains sampling techniques, estimation, test of hypothesis and index numbers.

All the lectures will be devoted on discussions of basic theories and advanced topics, focusing on practical implementation of knowledge. Classes will be conducted by lecture as well as power point presentation, audio visual virtual lab session as per requirement. The tutorials will familiarize the students with practical problem-solving techniques led by the course coordinator. Students will strongly grab the basic concepts of the subject via exercise and discussions with the coordinator.

Course Content

Unit-I (15L)

Definitions of random sample, parameter and statistic, null and alternative hypotheses, simple and composite hypotheses, level of significance and probabilities of Type I and Type II errors, power of a test and critical region. Sampling distribution of a statistic, sampling distribution of sample mean, standard error of sample mean.

Unit-II (25L)

Large sample tests for single mean, difference of means**,** standard deviation and difference of standard deviations. Sampling distributions of chi-sq, t and F: definitions, properties and relationships between

them. Tests of Significance based on Chi-square (goodness of fit and independence of attributes), t distribution and F- distribution using classical and p-value approach.

Unit-III (25L)

Methods of estimation: maximum likelihood, least squares and minimum variance, statement of Rao-Blackwell theorem and Lehmann-Schaffer theorem. Properties of maximum likelihood estimators (illustration). Interval Estimation: confidence intervals for the parameters of normal distribution, confidence intervals for difference of mean and for ratio of variances.

Unit-IV (10L)

Basic concept of index numbers – simple and weighted index numbers – concept of weights -types of index numbers – Business index number – CPT, WPI, Sensex, Niffy, Production Index.

Text book

T1. A.M. Goon, M.K. Gupta and B. Dasgupta (2003): *An outline of Statistical Theory* (Vol. I), 4th Ed., World Press, Kolkata.

T2. S.C. Gupta and V.K. Kapoor (2007): *Fundamentals of Mathematical Statistics*, 11th Ed., Sultan Chand and Sons.

Reference book

R1. V.K. Rohtagi and A.K. Md. E. Saleh (2009): *An Introduction to Probability and Statistics*, 2nd Edition, John Wiley and Sons.

Modes of Examination: Assignment/Quiz/Project/Presentation/Written Exam

Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	30	20	50

Relationship between the Course Outcomes (COs) with Program Outcomes (POs)

Mapping between COs, POs

Course Outcomes (COs)		Mapped POs
CO-1	**Recall** basic terminologies of sampling, hypothesis testing.	PO1, PO3, PO7
CO-2	**Illustrate** sampling distribution of statistics and test of significance for large sample and small sample.	PO1,PO3, PO7
CO-3	**Explain** several methods of estimation to estimate population parameters.	PO1,PO3, PO7, PO8
CO-4	**Classify** several types of index numbers to measure relative changes.	PO1,PO3, PO7

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
SDS11507	Elective Statistics II	3		3				3	1

1=weakly mapped
2= moderately mapped
3=strongly mapped

Course Objectives

SOC11017	SOCIOLOGY IV- METHODS OF SOCIOLOGICAL ENQUIRY	L	T	P	C
Version 1.0	**Contact Hours - 90**	5	1	0	6
Pre-requisites/Exposure	12^{th} level				
Co-requisites	--				

1. The course is a general introduction to the methodologies of sociological research methods.
2. It will provide the student with some elementary knowledge of the complexities and philosophical underpinnings of research.
3. The course offers a multidisciplinary approach to research methodology
4. Students will introduce some elementary statistics
5. Students will be provided skills to write research articles

Course Outcome:

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

CO1**. Understand** importance of research methodologies of sociology

CO2. **Develop** knowledge about multidisciplinary approach to research methodology

CO3. **Understand** nuances of qualitative and quantitative techniques and analysis

CO4. **Understand** use and importance of statistics in sociology

CO5. **Learn** how to produce original academic writing

Course Description:

This course will provide knowledge about importance of research methodology in sociology and other social sciences. The students will get to know about scientific nature of sociology through data analysis, interpretation and result making. They will gain knowledge about both qualitative and quantitative methods of research. They will get to know various forms of data collection, data analysis and interpretation process and will be able to write research papers.In this paper students will be trained with statistical applications of Sociology. Students will practice various statistical methods – frequency distribution, graphs, central tendency, dispersion and the application of those in sociology.

Course Content

Unit-I **14 Lecture Hours**

The Logic of Social Research: What is Sociological Research? Objectivity in the Social Sciences ; Reflexivity

Unit-II **14 Lecture Hours**

Methodological Perspectives: The Comparative Method; The Ethnographic Method; Modes of Enquiry

Unit III **14 Lecture Hours**

Sampling and Data Collection

Measurement and Scaling, Scaling techniques, Questionnaires, Surveys, Sampling Techniques

Unit IV **13 Lecture Hours**

Qualitative Research

Qualitative Approach, Participant and Non-participant Observation, Content Analysis, Narrative Analysis, Qualitative Data Analysis

Unit V **10 Lecture Hours**

Quantitative Research

Quantitative Approach, Quantitative Tools-Statistical Inference, Quantitative Data Analysis

Unit VI **10 Lecture Hours**

Academic Writing and Publishing

Research Proposal- Review of Literature, Research Questions and Objectives, Reference Systems and Research Ethics

References:

1. Babbie, E. 2004. *The Practice of Social Research*. Thomson and Wadsworth.

2.Baker, T.L. 1990. *Doing Social Research*. McGraw-Hill.

3.Bailey. F.G. 2007.*Methods of Social Research.*Free Press

4. Bryman, Alan. 1988. Quality and Quantity in Social Research, London: Unwin Hyman.

5.Creswell.J.2013,Qualitative Inquiry and Research Design:Choosing Among Five Approaches (3rd Ed.)Sage

6. Goode, G and P.K. Hatt. 1952. *Methods in Social Research*. McGraw-Hill.

7.Jayaram, N. 1989. Sociology: Methods and Theory. Madras: MacMillian.

8.Miles, M. and A. Huberman. *Qualitative Data Analysis: an Expanded Source Book*. London: Sage, 1994

9.Kothari, C.R *Research Methodology: Methods and Techniques, New Delhi: New Age. 2004.*

10.Neuman, W.L. *Social Research Methods: Quantitative and Qualitative Approach*. New Delhi: Pearson Education India, 2006

Modes of Examination: Assignment/Quiz/Project/Presentation/Written Exam

Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	Understand importance of research methodologies of sociology	**PO5, PO6**
CO2	Gain knowledge about multidisciplinary approach to research methodology	**PO5, PO6**
CO3	The students will get acquainted with nuances of qualitative and quantitative techniques and analysis	**PO5,PO6,PO7**
CO4	Understand use and importance of statistics in sociology	**PO6,PO7**
CO5	The students will learn how to produce original academic writing	**PO6, PO8**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
SOC11017	METHODS OF SOCIOLOGICAL ENQUIRY	-	-	-	-	3	3	2	1

1=weakly mapped
2= moderately mapped
3=strongly mapped

PSG11021	Human Values and Professional Ethics	L	T	P	C
Version 1.0		2	0	0	2
Pre-requisites/Exposure	--				
Co-requisites	--				

Course Objectives

- To inculcate human values and professional ethics in students.
- To enhance the understanding of students towards personal, professional & societal relationships and achieve harmony in life.
- To develop moral responsibilities and ethical vision.

Course Outcomes

At the completion of the course, the student should be able to:

CO1. Understand the importance of values, ethics, harmony and lifelong learning in personal and professional life

CO2. Apply the knowledge to perform self-exploration and transformation augmenting harmony, peace and positivity in the surroundings

CO3. Appreciate the core values that shape the ethical behavior of a professional

Catalog Description

This course aims to develop an understanding for a movement from rule based society to a relationship based society. Apart from teaching values, this course encourages students to discover what values are for them and for society. Self-exploration also enables them to critically evaluate their pre-conditionings and present beliefs. It is designed in a way where students get familiar with the Ethical Code of Conduct, Ethical Dilemma, Conflict of Interest and all this will help them eventually in their professional life.

Course Content

Unit I: Introduction to Human Values: Character, Integrity, Credibility, Mutual Respect, Dedication, Perseverance, Humility and Perception. Self-Assessment & Analysis, Setting Life Goals, Consciousness and Self-Transformation. Team Work, Conflict Resolution, Influencing and Winning People, Anger Management, Forgiveness and Peace, Morality, Conscience. Yoga and Spirituality

Unit II: Harmony and Life Long Learning: Harmony in human being, Nature and Existence. Harmony in family and society –Responsibilities towards society, Respecting teachers. Transition from School to College - Freedom & Responsibilities, Respecting Cultural Diversity, Learning beyond the Classrooms, Independent study and research

Unit III: Introduction to Professional Ethics: Work Ethics, Engineering Ethics, Moral Dilemma, Moral Development Theories, Ethical Theories- Kantinism, Utilitarianism, etc , Case Studies for Choice of the theory, Code of Ethics

Unit IV: Individual to Global Issues: Industrial Standards, A Balanced Outlook on Law, Safety, Responsibility, Rights, Confidentiality, Conflict of Interest, Occupational Crime, Whistle Blowing, Environmental Ethics, Business Conduct in MNC, E-Professionalism (IPR, Internet Ethics & Privacy issues)

Text Books

1. Shetty, Foundation Course in Human Values and Professional Ethics [R.R. Gaur, R. Sangal, G.P. Bagaria]

Modes of Evaluation: Quiz/Assignment/ Seminar/Written Examination Scheme:

Components	MSE I	MSE II (Activity)	Quiz/Assignment/Seminars etc	ESE
Weightage (%)				

Semester V

ECO11008	Intermediate Microeconomics	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	12th level English, Knowledge of introductory microeconomics				
Co-requisites					

Course Objectives

This course is designed to introduce students to more complicated issues of microeconomics that deals with the working of different imperfect market structures. The course aims to develop the knowledge of different types of pricing strategies and market power adopted by the producers, theoretical concepts of the theories of distribution, welfare economics and an overall understanding of the decision-making processes of consumers and producers in an economy.

Course Outcomes

On completion of this course, the students will be able to:

CO1. **Understand** more complicated issues of microeconomics around different market structures under imperfect competition like monopoly, monopolistic competition, and oligopoly.

CO2. **Develop** knowledge on the conflicts of efficiency versus equity along with general idea of welfare discussed.

CO3. **Develop** basic knowledge of factor market.

CO4. **Understand** economic process that governs the production, distribution and consumption decisions.

Course Content

Unit I: Market under Imperfect Competition: Monopoly and Monopsony [15Hrs]

Monopoly**:** Average and Marginal Revenue; Monopolist's output decisions; Multi plant Firm, Monopoly power: measures, sources; Social cost of monopoly power: rent seeking, price regulation; Natural Monopoly.
Monopsony: sources of monopsony power, comparison with monopoly; bilateral monopoly.

Unit II: Pricing with Market Power [10Hrs]

Market Power: Sources, Capturing the consumer surplus; Price Discrimination: First Degree, Second Degree, Third Degree; Intertemporal Price Discrimination, Peak Load Pricing, Two Part tariff; Bundling; Advertising.

Unit III: Market under Imperfect Competition: Oligopoly [15 Hrs]

Oligopoly: Equilibrium in an oligopolistic market, the Cournot Model, First Mover's Advantage- Stackelberg Model, Pricing under Homogenous Products: the Bertrand Model, Pricing under differentiated products; Competition versus Collusion: Prisoner's Dilemma; the Payoff Matrix of a Game, Nash Equilibrium; Implication of Game in oligopolistic pricing: Price Rigidity and Kinked Demand Curve Model, Price signaling, Price Leadership, Dominant Firm model, Cartels.

Unit-IV: Factor Market [10Hrs]

Competitive factor markets: Demand for a factor input, Supply of inputs, Equilibrium in a competitive factor market, Economic Rent; Factor Market with imperfect competition: Input demand under monopoly, Input supply with monopsony, Labor exploitation under monopoly and monopsony, Product Exhaustion theorem; Distinction between Labour, Land, and Capital; Theory of Economic Rent-genesis of rent, rent in a market economy; Theory of Profit; Theory Interest- capital, interest, and user cost of capital; Theory of Wage-backward bending labour supply curve.

Unit V: Introduction to Welfare Economics [5 Hrs]

General Equilibrium: Edgeworth Box Diagram, Efficiency and Equity, Externalities: Positive and Negative, Coase Theorem, Externality and property rights; Public goods, private return and public return, private and public cost; Government Intervention: Examples and Cases.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Peer Tutoring
- Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Internal +Attendance	Mid Term	End Term

Weightage (%)	**20+10 = 30**	**20**	**50**

Core Text

1. Intermediate Microeconomics: A Modern Approach. H.R. Varian. East West Press; 8th edition (2010).
2. Modern Microeconomics. Koutsoyiannis. Palgrave Macmillan; 2nd edition, 2008.

Reference Books

1. Microeconomics. R. S. Pindyck, D.L. Rubinfeld, and P.L. Mehta. Pearson, India, 7thedition, 2013

2. Microeconomics: Theory and Applications. G.S. Maddala, and E. Miller. McGraw Hill Education (India) Private Limited; 3rd edition, 2004.

3. Principles of Microeconomics. D. Salvatore. Oxford University Press (5th or later edition).
4. Microeconomic Theory. Ferguson, and Gould. All India Traveler Book Sellers (6th edition).

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs		
	Course Outcomes (COs)	**POs**
CO1	**Understand** more complicated issues of microeconomics around different market structures under imperfect competition like monopoly, monopolistic competition, and oligopoly.	**PO1, PO2, PO3**
CO2	**Develop** knowledge on the conflicts of efficiency versus equity along with general idea of welfare discussed.	**PO1, PO2, PO6, PO8**
CO3	**Analyze** major problems associated with market failure.	**PO1, PO2, PO6, PO7, PO8**
CO4	**Understand** economic process that governs the production, distribution and consumption decisions.	**PO1, PO2, PO6, PO7, PO8**

1=weakly mapped

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO11008	Intermediate Microeconomics	3	3	2	-	-	3	3	3

2= moderately mapped

3=strongly mapped

ECO11009	INTERMEDIATE MACROECONOMICS	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	Introductory knowledge of Macroeconomics				
Co-requisites	--				

Course Objectives

This course is a sequel to Introductory Macroeconomics. In this course, the students are introduced to the open economy models and issues pertaining to international trade, financial market, etc. It also provides the micro-foundations to the various aggregative concepts used in the previous course. The theories related to consumption, investment and growth models are dealt in depth. The course engages debates and critics related to different schools of macroeconomic thought. In addition, it covers the long run dynamics of growth models and technological progress also.

Course Outcomes:

At the end of the course, the student will be able to:

CO1: **Understand** the functioning of the economy in macro frame and its policy issues

CO2: **Learn** modern macroeconomic theories related to consumption, investment, growth, the long run dynamic issues like economic growth and technological progress etc.

CO3: **Develop** knowledge on open economy macroeconomics and different models

CO4: **Analyse** different macroeconomic policies and its impact on economy

Course Content

Unit 1: Schools of Macroeconomic Thoughts **(10 hrs)**

Classicals, Keynesians, New-Classicals and New-Keynesians.

Unit 2: Consumption Theories

(8 hrs)

Keynesian consumption function; Fisher's theory of optimal intertemporal choice; life-cycle and permanent income hypotheses; rational expectations and random-walk of consumption expenditure.

Unit 3: Investment Theories **(9 hrs)**

Determinants of business fixed investment; residential investment and inventory investment.

Unit 4: Economic Growth (10 hrs)

Harrod-Domar model, Solow model, golden rule, technological progress and introduction of endogenous growth.

Unit 5: Balance of Payments & Exchange rate (8 hrs)

BOP accounting: concept of current account, capital account, Equilibrium and Disequilibrium; concept of exchange rates: fixed and flexible

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment/Quiz/Project/Presentation/ Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Internal +Attendance	Mid Term	End Term
Weightage (%)	**20+10 = 30**	**20**	**50**

Text Books

1. N. Gregory Mankiw. Macroeconomics, Worth Publishers; 7th edition (2009).
2. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill Education; 12th edition (2018)
3. Richard T Froyen. Macroeconomics: Theories and Policies, Pearson Education India; 10th edition (2013)

Reference Books

1. Olivier Blanchard, Macroeconomics, Pearson Education, Inc., 5th edition, 2009
2. Steven M. Sheffrin, Rational Expectations, Cambridge University Press, 2nd edition, 1996.
3. Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and Pos		
	Course Outcomes (COs)	**POs**
CO1	**Understand** the functioning of the economy in macro frame and its policy issues	**PO1, PO2, PO3, PO4**
CO2	**Learn** modern macroeconomic theories related to consumption, investment, growth, the long run dynamic issues like economic growth and technological progress etc.	**PO4, PO7**
CO3	**Develop** knowledge on open economy macroeconomics and different models	**PO2, PO8**
CO4	**Analyse** different macroeconomic policies and its impact on economy	**PO4, PO5, PO6**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO11009	INTERMEDIATE MACROECONOMICS	3	3	2	1	-	3	3	1

1=weakly mapped
2= moderately mapped
3=strongly mapped

Semester VI

ECO11016	International Economics	L	T	P	C
	Contact Hours – 60	3	1	0	4
Pre-requisites/Exposure	Exposure to Basic Economic Theory				
Co-requisites	NA				

Corse Objective:

This course develops a systematic exposition of models that try to explain the composition, direction, and consequences of international trade, and the determinants and effects of trade policy. It then builds on the models of open economy macroeconomics developed in earlier courses, focusing on national policies as well as international monetary systems. It concludes with an analytical account of the causes and consequences of the rapid expansion of international financial flows in recent years. Although the course is based on abstract theoretical models, students will also be exposed to real-world examples and case studies.

Course Outcomes:

On completion of the course it is expected that students will be able to:

CO1. Define fundamentals of international trade and trade policy.
CO2. Understand how international monetary system works.
CO3. Evaluate macroeconomic policy options in open economy settings.

Course Contents:

Unit I. Introduction 10 hrs
What is international economics about? An overview of world trade.

Unit II. Theories of International Trade 15 hrs
The Ricardian, specific factors, and Heckscher-Ohlin models; new trade theories; the international location of production; firms in the global economy — outsourcing and multinational enterprises.

Unit III Trade Policy 10 hrs
Instruments of trade policy; political economy of trade policy; controversies in trade policy.

Unit IV International Macroeconomic Policy 10hrs
Fixed versus flexible exchange rates; international monetary systems; Macroeconomic policies in open economy with no capital mobility and with Capital mobility; financial globalization and financial crises.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia

- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

Text and Reference:

1. Paul Krugman, Maurice Obstfeld, and Marc Melitz, *International Economics: Theory and Policy*, Addison-Wesley (Pearson Education Indian Edition), 9th edition, 2012.

2. Dominick Salvatore, *International Economics: Trade and Finance*, John Wiley International Student Edition, 10th edition, 2011.

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Define fundamentals of international trade and trade policy	**PO3 & 6**
CO2	**U**nderstand how international monetary system works.	**PO3 & 4**
CO3	Evaluate macroeconomic policy options in open economy settings.	**PO5**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO11016	International Economics			3	2	3	2		

1=weakly mapped
2= moderately mapped
3=strongly mapped

Course Objectives

This paper introduces students to the terminology and analytic principles used in microeconomics, which is broadly defined as the study of markets, and to the application of

ECO11010	Mathematical Economics	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	12th level English				
Co-requisites					

these conceptual tools to several policy issues. The objective of the course is to equip the students with mathematical analysis of various economic problems. The students will be able to understand the decisions of buyers and sellers and their interaction in market transactions will be analysed.

Course Outcomes:
On completion of this course, the students will be able to:
CO1. **Apply** the mathematical tools to analyze the economic problems.

CO2. **Develop** the knowledge of the use of derivative and integration techniques in economic framework.

CO3. **Apply** unconstrained and constrained optimization technique.

CO4. **Analyze** the use of difference and differential equations in real world economic activity in constant time and continuous time framework.

Course Content

Unit-I: Linear Models and Matrix Algebra [8 Hours]
Vector Spaces, Linear Transformations, Matrices, Linear Equations and Determinants, Cramer's Rule. Applications

Unit II: Unconstrained Optimization [8 lecture hours]
Concept of optimization. First-order conditions, Second-order conditions, Global maxima and minima. Applications- Profit maximization, Inventory control, Comparative static effects of taxes.

Unit-III: Constrained Optimization [14 lecture hours]
Constrained optimization and resource allocation, Equality Constraints, Inequality Constraints. The Lagrangean technique for optimization: constrained optimization with two variables, first order condition, second-order conditions; Constrained optimization with more than two variables. Application: Consumer's utility maximization, Firm's cost minimization; Kuhn-Tucker Formulation- Non-negativity restrictions, Inequality constraints, Interpretation; Envelope Theorem- for unconstrained optimization, for constrained optimization. Interpretation of Lagrange multiplier.

Unit-IV: First Order Difference Equation: Discrete Time [10 lecture hours]
Discrete time, Differences, and Difference Equation; Solving a first order difference equation;. Application: The Cobweb Model.

Unit-V: First Order Differential Equation: Continuous Time [5 lecture hours]
Continuous time, Differential Equations. First order differential equation- Solving linear differential equation. Applications.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Peer Tutoring
- Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Internal +Attendance	Mid Term	End Term
Weightage (%)	**20+10 = 30**	**20**	**50**

Core Text

T1. Chiang, Alpha and Kevin Wainwright (2013), Fundamental Methods of Mathematical Economics, Fourth Edition, McGraw-Hill

References:

R1. Simon, Carl. P., Blume, Lawrence. (2010). Mathematics for Economists, Norton.
R2. Sydseater, K., Hammod, P. (2002). Mathematics for Economics Analysis. Pearson Education India.
R3. Rosser, Mike (2003), Mathematics for Economists, Second Edition, Routledge.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs		
	Course Outcomes (COs)	**POs**
CO1	**Apply** the mathematical tools to analyze the economic problems.	**PO1, PO2, PO3,PO4, PO7**

CO2	**Develop** the knowledge of the use of derivative and integration techniques in economic framework.	**PO2, PO3, PO4, PO5, PO6, PO8**
CO3	**Apply** unconstrained and constrained optimization technique.	**PO1, PO2, PO3, PO6, PO7**
CO4	**Analyze** the use of difference and differential equations in real world economic activity in constant time and continuous time framework.	**PO1, PO2, PO3, PO6, PO7**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship

1=weakly mapped

Course Code	Course Title	PO1	PO2	PO 3	PO4	PO5	PO6	PO7	PO8
ECO11010	Mathematical Economics	3	3	3	3	1	-	2	2

2= moderately mapped
3=strongly mapped

List of Electives

(SEM V and SEM VI)

ECO11029	Mathematics for Economics	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	12^{th} level Mathematics				
Co-requisites					

Course Objectives

This paper introduces students to the terminology and analytic principles used in microeconomics, which is broadly defined as the study of markets, and to the application of these conceptual tools to several policy issues. The objective of the course is to equip the students with mathematical analysis of various economic problems. The students will be able to understand the decisions of buyers and sellers and their interaction in market transactions will be analysed.

Course Outcomes:

On completion of this course, the students will be able to:

CO1. **Understand** the mathematical tools and their application in Economics.

CO2. **Develop** the knowledge of the use of mathematics essential to analyze single variable and multivariable economic problems.

CO3. **Apply** calculus in analysis of economic variables.

CO4. **Analyze** the use of basic algebra in economics. .

Course Content

Unit-I: Introduction to Mathematics for Economics [10 lecture hours]

1.1.Exponents, 1.2. Polynomials. 1.3. Equations: Linear and Quadratic. 1.4. Simultaneous Equations. 1.5. Functions, 1.6. Graphs, Slopes and Intercepts. 1.7. Economic Applications of Graphs and Equations. 1.8. Examples and Application

Unit-II: Derivatives and Differentiation [10 lecture hours]

2.1. Limits. 2.2. Continuity. 2.3. The Slope of a Curvilinear Function. 2.4. The Derivative. 2.5. Differentiability and Continuity. 2.6. Derivative Notation. 2.7. Rules of Differentiation. 2.8. Examples and Application.

Unit-III: Application of Derivatives in Economics [10 lecture hours]

3.1. Increasing and Decreasing Function, 3.2. Concavity and Convexity, 3.3. Inflection Points, 3.4. Marginal Concepts. 3.5. Relationship among Total, Marginal and Average Concepts. 3.6. Functions of Several Variables and Partial Derivatives. 3.7. Rules of Partial Derivatives, 3.8. Total and Partial Differentials. 3.9 Total Derivatives. 3.10 Implicit and Inverse Function Rules.

Unit-IV: Calculus of Multivariable Functions in Economics [8 lecture hours]

4.1 Price Elasticity of Demand, 4.2. Income Elasticity of Demand 4.3. Cross Elasticity of Demand, 4.4. Marginal, Average and Total Productivity, 4.5. Differential and Incremental Changes. 4.6. Application and Examples. 4.7. Some additional areas of application.

Unit-V: The Fundamentals of Algebra [7lecture hours]
5.1. Role of Linear Algebra in Economics. 5.2. Definitions and Terms. 5.3. Addition and Substraction of Algebra. 5.4. Scalar and Vector Multiplication. 5.5. Laws of Matrix Algebra. 5.6. Inverse Matrix 5.7. Cramer's Rule for Matrix Solutions.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Peer Tutoring
- Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Internal + Attendance	Mid Term	End Term
Weightage (%)	**20+10 = 30**	**20**	**50**

Core Text

Edward T. Dowling, (2001) Introduction to Mathematical Economics, Schaum's Outline Series
McGRAW-HILL

References:

R1. Simon, Carl. P., Blume, Lawrence. (2010). Mathematics for Economists, Norton.
R2. Sydseater, K., Hammod, P. (2002). Mathematics for Economics Analysis. Pearson Education India.
R3. Rosser, Mike (2003), Mathematics for Economists, Second Edition, Routledge.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs		
	Course Outcomes (COs)	**POs**
CO1	**Apply** the mathematical tools to analyze the economic problems.	**PO1, PO2, PO4, PO7**
CO2	**Develop** the knowledge of the use of derivative and integration techniques in economic framework.	**PO2, PO4, PO5, PO6, PO8**
CO3	**Apply** unconstrained and constrained optimization technique.	**PO1, PO2, PO6, PO7**
CO4	**Analyze** the use of difference and differential equations in real world economic activity in constant time and continuous time framework.	**PO1, PO2, PO6, PO7**

1=weakly mapped
2= moderately mapped
3=strongly mapped

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO 3	PO4	PO5	PO6	PO7	PO8
ECO11029	Mathematics for Economics	3	3	-	3	1	-	2	2

ECO11015	BASIC ECONOMETRICS	L	T	P	C
Version 1.0	Contact Hours: 60	3	1	0	4
Pre-requisites/Exposure	Basic knowledge of Mathematics at 10+2 level				
Co-requisites	Knowledge of Microeconomics and Macroeconomics				

Course objectives

Econometrics is concerned with the application of statistical theory to the analysis of economic data and the estimation of economic relationships. This course intends to expose students to the statistical techniques that economists use for estimating, testing, and forecasting economic relationships. In this paper students will be introduced with what 'Econometrics' is about. The basic concept of linear regression model under classical assumptions, statistical inference tools and techniques in a regressed model will be taught in a lucid approach. Moreover, the consequences of violations of classical assumptions will also be taught. This course covers a range of applications through statistical software.

Course Outcomes:

At the end of the course, the student will be able to:

CO1: **Understand** the econometrics as a discipline, its importance and various statistical techniques that economists use for estimating, testing, and forecasting economic relationships.

CO2: **Demonstrate** the basic concept of simple linear regression model under classical assumptions.

CO3: **Understand** the tools and techniques of statistical inference mainly in a simple linear regression model.

CO4: **Develop** insights about the sources, the consequences of violations of classical assumptions and the tests associated with it.

CO5: **Apply** the econometric tools to the analysis of economic data and the estimation of economic relationships.

Course Content:

Unit I: Introduction to Econometrics [4 Hrs]

What is Econometrics? Steps in Econometric Analysis; Specification of Econometric Model and Assumptions; Basic Concepts of Estimation and Desirable Properties of Estimators; Data for Econometric Analysis.

Unit-II: Classical Statistical Inference [10 Hrs]

Basic concepts of estimation: Desirable properties of estimators, Methods of Point Estimation - Maximum Likelihood Estimators and their properties.

Testing of Hypothesis: Confidence Intervals, p-values, Type-I and Type-II Errors, Simple applications of tests for the Mean and Variance of a Univariate Normal Population.

Unit III: Classical Linear Regression Model [8 Hrs]

Stochastic and non-stochastic relationships; The concept of regression, Two Variable Case, Specification of the relationship; Estimation- Method of Least Squares, Assumptions; Gauss-Markov Theorem; Properties of Least Squares estimates; BLUE.

Unit IV: Statistical Inference in Classical Linear Regression Model [9 Hrs]

Statistical Inference in simple linear regression model- Confidence Intervals for parameters, Testing of Hypothesis-Testing of regression coefficient; Test for regression as a whole, Coefficient of determination, Goodness of Fit, F-test, Analysis of Variance.

Unit V: Violations of Classical Assumptions and Remedies [8 Hrs]

Problems of Heteroscedasticity; Auto correlation (first order) — their consequences, tests and remedies.

Unit VI: Application of Econometric Methods [6 Hrs]

Estimation of demand and supply functions, production and cost functions and consumption function and investment function.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Internal +Attendance	Mid Term	End Term
Weightage (%)	**20+10 = 30**	**20**	**50**

Core Text

1. Jeffrey M. Wooldridge. Introductory Econometrics: A Modern Approach Cengage Learning India Pvt. Ltd.; 5th edition (2014)

Reference Books:

1. Damodar N. Gujarati, Dawn C. Porter, and Sangeetha Gunasekar. Basic Econometrics. McGraw Hill Education (India) Private Limited; 5th edition (2011)

2. G. S. Maddala, Kajal Lahiri. Introduction to Econometrics. Wiley India Pvt Ltd; 4th edition (2012)

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs		
	Course Outcomes (COs)	**POs**
CO1	**Understand** the econometrics as a discipline, its importance and various statistical techniques that economists use for estimating, testing, and forecasting economic relationships.	**PO1, PO2**
CO2	**Demonstrate** the basic concept of simple linear regression model under classical assumptions.	**PO1, PO2**
CO3	**Understand** the tools and techniques of statistical inference mainly in a simple linear regression model.	**PO1, PO2, PO3, PO8**
CO4	**Develop** insights about the sources, the consequences of violations of classical assumptions and the tests associated with it.	**PO1, PO2, PO3, PO8**
CO5	**Apply** the econometric tools to the analysis of economic data and the estimation of economic relationships.	**PO1, PO2, PO3, PO7, PO8**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO11015	Basic Econometrics	3	3	2	–	–	–	1	2

1=weakly mapped
2= moderately mapped
3=strongly mapped

ECO11021	LABOUR ECONOMICS	L	T	P	C
Version 1.0	Contact Hours – 60	3	1	0	4
Pre-requisites/Exposure	Basic knowledge of Mathematics at 10+2 level				
Co-requisites	Knowledge of Microeconomics and Macroeconomics				

Course objectives

This course aims at introducing major theoretical models existing in labour economics and offer theoretical explanations of unemployment. It intends to build the skill of analyzing different concepts of labour market issues, such as unemployment, returns to education, wage gap, discrimination, etc. This course will help in developing the knowledge about the working of different trade unions and their impact on wages and employment. It will also help to develop the skill of critically analysis the research outcomes in the field of labour economics and connect them with the underlying assumptions of labour economics as well as industrial economics.

Course Outcomes:

At the end of the course, the student will be able to:

CO1. **Understand** the theoretical background of labour Economics with special emphasis on the working of trade unions.
CO2. **Understand** industrial economics in a better way as the course of labour economics has been designed as a complementary to industrial economics.
CO3.**Analyse** the structure of labour market of a particular region and will be able to understand its frictions.
CO4. **Analyse** macroeconomic forces and their impact on labourers, firms, and government.

Course Content:

Unit 1: Aggregate Labour Market (13 Hours)
Basic theories of Labour Demand; Labour Supply: A household choice; Empirical Estimation of the labour demand schedule; Nominal Wage rigidity

Unit-2: Labour Market: A closer looks (10 Hours)
Some stylized facts; Some standard Macroeconomic models for the labour markets; Real wage rigidities; Summary

Unit-3: Trade Union Models (12 Hours)
Basic Trade Unions Model; Monopoly Trade Union Model, Right to Manage Model; Efficiency Bargaining Model; Hysteria and persistence of Unemployment.

Unit-4: Unemployment. (10 Hours)
Insider -Outsider model; Efficiency wage model; Search Model; Labour market institutional models of Unemployment.
Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

Core Text

T1. Daniel S. Hamermesh, Labour Demand, Princeton University Press, 1996.
T2. . Cahuc, Pierre, and Andre Zylberberg. Labor Economics. Cambridge, Mass. and London: MIT Press, 2004.

Reference Books:

R1. Bhattacharjea, Aditya (2006), "labor Market Regulation and Industrial Performance in India:A Critical Review of the Empirical Evidence", The Indian Journal of labor Economics, 49(2):211-32

R2. Deakin Simon (2014), "Labour Law and Inclusive Development",Centre for Business Research, University of Cambridge ,Working Paper No. 458.

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs		
	Course Outcomes (COs)	**POs**

CO1	**Understand** the theoretical background of labour Economics with special emphasis on the working of trade unions.	**PO1, PO2, PO4, PO6, PO7, PO8**
CO2	**Understand** industrial economics in a better way as the course of labour economics has been designed as a complementary to industrial economics.	**PO1, PO2, PO4, PO6, PO7, PO8**
CO3	**Analyse** the structure of labour market of a particular region and will be able to understand its frictions.	**PO1, PO2, PO4, PO6, PO7, PO8**
CO4	**Analyse** macroeconomic forces and their impact on labourers, firms, and government.	**PO1, PO2, PO4, PO6, PO7, PO8**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8

ECO11021	Labour Economics	3	2	_	2	_	1	1	2

1=weakly mapped
2= moderately mapped
3=strongly mapped

ECO11022	RESOURCE AND ENVIRONMENTAL ECONOMICS	L	T	P	C
Version 1.0	Contact Hours – 60	3	1	0	4
Pre-requisites/Exposure	Basic knowledge of Mathematics at 10+2 level				
Co-requisites	Knowledge of Microeconomics and Macroeconomics				

Course objectives

This course is designed to introduce under-graduate students to the economic issues around natural resources as well as environmental problems from the perspective of economics. Natural resources being scarce lead to core economic questions regarding the optimal rate of extraction. On the other hand, how discovery of new resource bases change the pricing and usage of one resource comes under the domain of resource economics. Designing economic instruments for regulation of environmental problems as well valuation of environmental services are major two focus of this course. In addition to that, some global environmental issues along with their macroeconomic policy impact will be addressed in this course.

Course Outcomes:

At the end of the course, the student will be able to:

CO1. **Understand** the Environment Economy relationship that forms the backdrop of many environmental problems from the perspective of economics.

CO2. **Analyse** how optimal rate of extraction change the pricing and usage of one resource comes under resource economics.

CO3. **Develop** insights about how discovery of new resources affecting pricing and usage of one resource comes under the domain of resource economics.

CO4. **Understand** environmental aspects of market failure

CO5. **Understand** the design and application of economic instruments for regulation of environmental problems and explain global environmental conventions.

Course Content:

Unit 1: Economics and Environment [10 lecture hours]
Introduction; Economics and Environment; Review of Microeconomics and Economic Welfare; Definition and role of Environmental Economics; Scope and Significance of Environmental Economics; Relationship between the Environment and the Economic System; Environment as a Resource: Environmental Quality

Unit 2: Economics of Exhaustible Resources [10 lecture hours]

Intergenerational liquidity – Inter temporal - Dynamic Framework of Optimal Control – Market Structure of Non-renewable resources – problem of Uncertainty – Depletion vs. Discovery –

Examples;

Unit 3: Economics of Renewable resources [7 lecture hours]

Renewable resources – Problem of uncertainty – Case study of Forestry: Single versus Multiple use Forest – Fishery: The concept of Maximum Sustainable Yield (MSY) - Economic Decision regarding optimal rate of Extraction

Unit 4: Market Failure and Problem of Externality and Environmental Regulation [8 lecture hours]

Concept of Externalities and Public Bad; Concepts of Rivalry and Excludability; Environmental Pollution as a Public Bad; Externality (Pigou), Property Rights (Coase), Optimal Pollution; Pollution Control: Alternative Market Based Instruments – Pure policies (Emission Fees,Standard setting, and Tradable Pollution Permits), Hybrid instruments (two-part tariff)

Unit 5: Environmental Valuation [5 lecture hours]

Measuring values, benefits and costs – overview; total value – use and non-use values of goods; Total Economic Valuation; Valuation Methods: Stated Preference Approach, Revealed Preference Approach (intuitive discussion on different valuation methods)

Unit 6: Macroeconomic Purview of Environment [5 lecture hours]

Environment and Global Climate Change; Kiyoto Protocol and Issues around Carbon trading; Ecological Footprints; International Environmental Policies; Environmental Performance Index: choice of indicators; Environmental Performance Index: Comparison across Developing and Developed World.

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring

- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

Core Text

1. Charles Kolstad, *Intermediate Environmental Economics*, Oxford University Press, 2nd
2. edition, 2010
3. Costanza, et.al. (1998): *An Introduction to Ecological Economics*.
4. Bhattacharyya, R.N. (2001): *Environmental Economics: Indian Perspective*, OUP

Reference Books:

1. Hanley, Shogren & White (1997): *Environmental Economics*, McMillan.
2. James, Mishra & Murty (1999) *Economics of Water Pollution: The Indian Experience*.OUP
3. Kadekodi , G. (2004): *Environmental Economics in Practice: Case Studies from India*, OUP
4. Environmental Performance Index, http://epi.yale.edu/ , Yale University;
5. United Nations Framework on Climate Change, http://newsroom.unfccc.int/
6. Kiyoto Protocol http://www.kyotoprotocol.com/

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping of COs and POs		
	Course Outcomes (COs)	**POs**
CO1	**Understand** the Environment Economy relationship that forms the backdrop of many environmental problems from the perspective of economics.	**PO1, PO2, PO4, PO5, PO6, PO7, PO8**

CO2	**Analyse** how optimal rate of extraction change the pricing and usage of one resource comes under resource economics	**PO1, PO2, PO4, PO5, PO6, PO7, PO8**
CO3	CO3. **Develop** insights about how discovery of new resources affecting pricing and usage of one resource comes under the domain of resource economics.	**PO1, PO2, PO4, PO5, PO6, PO7, PO8**
CO4	CO4. **Understand** environmental aspects of market failure	**PO1, PO2, PO4, PO5, PO6, PO7, PO8**
CO5	CO5. **Understand** the design and application of economic instruments for regulation of environmental problems and explain global environmental conventions.	**PO1, PO2, PO4, PO5, PO6, PO7, PO8**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society
		Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions
		Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data
		Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society
		Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns
		Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society
		Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.
		Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship

Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO11022	Resource and Environmental Economics	3	2	_	2	3	1	1	2

1=weakly mapped
2= moderately mapped
3=strongly mapped

ECO11024	Behavioral Economics	L	T	P	C
	Contact Hours – 60	3	1	0	4
Pre-requisites/Exposure	Exposure to Microeconomics				
Co-requisites	NA				

Course Objective

To explain economic decision-making process and role of psychology in it and to elaborate the deviation in reality and standard economic theoretical predictions in the framework of behavioral economics

Course Outcomes

On completion of the course it is expected that students will be able to:

CO 1. Understand economic decision making and its applications.
CO 2 Analyse the framework of behavioural economics.
CO 3 Apply critical thinking skills to analyse behaviour.

Course Content

Unit I Introduction to Behavioral Economics 12 hrs

Origins of Behavioral Economics, Decision-making under Neo-classical economic framework- rationality, optimization Role of Intuition, Emotions, Beliefs in decision making Bounded Rationality Judgment under Risk & Uncertainty : Heuristics & Biases Heuristics : Representativeness, Substitution, Availability, Affect, Anchoring, framing Biases: Cognitive and emotional biases

Unit II Choice Under Risk & Uncertainty Expected Utility Prospect Theory 10 hrs

Reference Points – Risk Concept and Understanding – Loss Aversion – Shape of Utility Function – Decision Weighting – Probabilistic Judgment.

Unit III Intertemporal Choices 12 hrs

Intertemporal Choice, Temporal Choice, Construal Level Theory, Valuation of Delayed Consumption Preferences for Sequences of Outcomes, Hyberbolic Discounting, Preference Reversal

Unit IV Behavioral Game Theory 11 hrs

Social preferences: Fairness, trust, cooperation, reciprocity

Pedagogy:

The Faculty may choose pedagogies suitable to the nature of course from following:

- Student Lecture and Presentation
- Case Study Analysis
- Teaching-learning Strategy using Multimedia
- Mind Mapping
- Chunking strategy
- Z to A Approach
- Collaborative and cooperative learning
- Anchored Instruction
- Peer Tutoring
- Microteaching and Simulated Teaching
- Blended learning
- Problem Based Learning (PBL)
- Rotation Model
- Flex Model
- Enriched Virtual Model

Modes of Examination: Assignment /Quiz / Project / Presentation / Course Work / Article reviews / Book Reviews / Reports / Written Exam / Jury / Survey / / any other method that suits to assess the given course outcome

Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

Text & References

● Erik Angner, “A Course in Behavioral Economics”, Palgrave Macmillan

● M. Altman, Handbook of Contemporary Behavioural Economics: Foundation and Developments (2007), Prentice Hall India

● E. Cartwright, Behavioural Economics (2011), Routledge

● D. Kahneman, Thinking Fast and Slow (2011), Allen Lane, Penguin Books

● G. Loewenstein, Exotic Preferences: Behavioural Economics and Human Motivation (2007), Oxford University Press

● Sanjit Dhami, "The Foundations of Behavioral Economic Analysis", Oxford University Press (2016)

● Behavioral Economics: Toward a New Economics by Integration with Traditional Economics by Ogaki, Masao, Tanaka, Saori C. Published by Springer, ISBN 978-981-10-6439-5

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Program Outcomes**
CO1	Understand economic decision making and its applications.	**PO 2 and 6**
CO2	Analyse the framework of behavioural economics.	**PO 1**
CO3	Apply critical thinking skills to analyse behaviour.	**PO 4 , 5 and 7**

ECO11024	Course Code	
Behavioral Economics	Course Title	
3	PO1	Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society
2	PO2	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions
	PO3	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data
3	PO4	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society
3	PO5	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns
2	PO6	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society
3	PO7	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.
	PO8	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship

ECO11041	Evolutionary Political Economy	L	T	P	C
	Contact Hours – 60	3	1	0	4
Pre-requisites/Exposure					
Co-requisites	NA				

Course Objective

This course introduces students to the emerging field of evolutionary political economy and provides theoretical insights into the evolution of complex economic systems that can explain regional change and adaptability. It gives an overview of alternative development paradigms, government policies, social movements, and interventions that have influenced modern economies and communities around the world. The course aims to provide students with an understanding of frontier research topics and a firm grasp of the tools available in the field. It examines important contributions in the fields of moral philosophy and welfare economics, as well as the relationship between political institutions and growth, to address some of the major deficiencies in contemporary economic theories. The course also evaluates existing economic models by comparing development experiences across countries.

On completion of the course, it is expected that students will be able to:

CO1. **Evaluate** different theoretical approaches and methodologies to better understand the social, economic, and political issues.
CO2 Demonstrate empirical knowledge of various regions and socio-economic systems in different types of economy.
CO3 Understand and critically analyze literature in evolutionary and institutional economics.
CO4 Recognize and **analyze** the moral dimensions of politics and economics.

Course Content

Unit I Evolution of Market Economy 10 hrs

Price System and the Invisible Hand; Evolution of Money; Concept of Market - Types of Markets, Interlinking of Individual Markets, Goods and Factor Markets; Economies- Free Market, Command and Mixed Economy.

Unit II Ethics, Morality and Rationality in Economics: Contemporary Scenario 10 hrs

Adam Smith and Self Interest; Pareto Optimality and Economic Efficiency; Wellbeing and Agency; Rights and Freedom; Rationality and Morality; Ethics in Economics.

Unit III Evolutionary Concepts in Economics for Conflict and Cooperation 8 hrs

Concept of Conflict and Cooperation - Negotiation and Bargaining; Asymmetric Information, Moral Hazard, and Commitment Problems; Tragedy of Commons; Domestic and International Relations and Institutions;

Unit IV Inequality and Social Justice 7 hrs

Poverty and Structural Inequality; Race and Ethnicity, Class and Caste, Environmental Inequality; Social Justice and Public Policy; Labour Legislation and Social Justice in India.

Unit V Comparative Economic Systems 10 hrs

Economic Systems; American Capitalism, European Experiment with Social Democracy, Scandinavian Capitalism and State Capitalism of Asian Nations.

Pedagogy:

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Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

References:

1. Joseph Schumpeter: *Capitalism, Socialism and Democracy*, Routledge (2006).
2. Amartya Sen: *Inequality Reexamined*, Harvard University Press (1995).
3. Amartya Sen: *On Ethics and Economics*, Oxford University Press (2013).
4. Angus Deaton, *The Great Escape: Health, Wealth and the Origins of Inequality*, Princeton University Press (2015).

5. Daron Acemoglu and James A. Robinson: *Why Nations Fail: The Origins of Power, Prosperity and Poverty*, Crown Business (2013).
6. Elinor Ostrom: *Governing the Commons: The Evolution of Institutions for Collective Action*, Cambridge University Press (1990)
7. Anu Partanen: *The Nordic Theory of Everything: In Search of a Better Life*, Harper Collins (2016).

Mapping between COs and POs		
	Course Outcomes (COs)	**Mapped Programme Outcomes**
CO1	Demonstrate the understanding of main principles of economics as applied to commerce and business.	**PO1, PO2**
CO2	Apply economic reasoning to the analysis of questions pertaining to business immediately.	**PO1, PO4**
CO3	Demonstrate the ability to interpret data in view of economic theories and evidences.	**PO3**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO11028	Evolutionary Political Economy	3	3	3	3	2	2	1	1

1=weakly mapped
2= moderately mapped
3=strongly mapped

ECO11019	Public Economics	L	T	P	C
Version 2.0		3	1	0	4
Pre-requisites/Exposure	Basic exposure of Macroeconomics				
Co-requisites	--				

Course Objectives:

This paper aims at analysing and explaining the Government budget, public expenditures and taxation and their components. The subject encompasses a host of topics including VAT, GST, public goods, market failures, and externalities. The course intends to develop students' analytical and consulting skills in the area of public finance. It will introduce students to the public sector reform agenda with a focus on public finance issues. The course will help students to study public policy from the points of view of economic efficiency and equity. The study is a blend of theoretical developments, issues and problems confronted by India and their proposed and adopted solutions. The course aims to develop analytical skills of the students in major areas of public finance and train students to critically analyse government budgets and fiscal policy.

Course Outcomes:

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

CO1. **Identify** and analyse government budgets, debt, public expenditures
CO2. **Understand** various theories of tax incidence and various types of tax structure
CO3. **Analyse** critically public goods and market failures
CO4. **Analyse** public policy from the points of view of economic efficiency and equity.

Course Content

Unit 1: Introduction to Public Finance [4 lecture hours]

Functions of Government - Economic functions -allocation, distribution and stabilization; Regulatory functions of the Government and its economic significance;

Unit 2: Public Expenditure and Public Goods [12 lecture hours]

Private goods and Pareto allocations – Edgeworth box approach - Concept of public goods—characteristics of public goods; national vs. local public goods; determination of provision of public good; Externality, concept of social versus private costs and benefits; merit goods, club goods; Provision versus production of public goods; Market failure and public provision – externalities, natural monopoly

Unit 3: Collective choice problems [4 lectures]
Arrows's impossibility theorem under majority voting- solution to the paradox

Unit 4: Principles of Taxation [4 lectures]
Benefit principle (Bowen- Lindahl- Samuelson) – Ability to Pay Principle

Unit 5: Effects of Taxation [12 lectures]

Effect of unit and ad valorem taxes on price and output under different market conditions – effect on taxes on wage on work effort- effect of a profit tax on work effort under collective bargaining

Unit 6: Fiscal policy and stabilisation [9 lecture hours]

Fiscal policy and built-in stabilisers, public debt and intergenerational burden, India's public finance scenario

Core Text:

1. Musgrave and Musgrave: Public Finance in Theory and Practice (Fifth Edition).
2. Brown, C.V. and P.M. Jackson: Public Sector Economics, Wiley- Blackwell, 1991 (4^{th} edition)
3. Musgrave, Richard : Public Finance, McGraw Hill

Reference Books:

4. Gruber J: *Public Finance and Public.* Worth Publishers
5. AmareshBagchi (ed.). Readings in Public Finance. Oxford University Press.
6. H L Bhatia. Public Finance. Vikas Publishing House Pvt. Ltd.

Pedagogy:

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Examination Scheme:

Components	Internal	Mid Term	End Term
Weightage (%)	**30**	**20**	**50**

Relationship between the Course Outcomes (COs) and Program Outcomes (POs):

Mapping between COs and POs		
	Course Outcomes (Cos)	**Mapped Program Outcomes**
CO1.	**Identify** and analyse government budgets, debt, public expenditures	**PO1, PO2, PO4**
CO2.	**Understand** various theories of tax incidence and various types of tax structure	**PO1, PO2, PO4, PO6**
CO3.	**Analyse** critically public goods and market failures	**PO1, PO2, PO6**
CO4.	**Analyse** public policy from the points of view of economic efficiency and equity.	**PO1, PO2, PO4, PO6**

		Domain specific knowledge and skills/ Acquire knowledge of core economic theories and adequately identify the issues related to economy, public policy and society	Problem Analysis and Critical thinking / Develop skills necessary to analyze economic data, think critically on alternatives and propose viable solutions	Modern IT Tools / Become proficient in using economic data analysis software (s) and conduct meaningful analysis of data	Business and Society / Appreciate the importance of responsibilities of businesses and government towards the society	Environment and sustainability / Contemplate on societal and global issues resulting from environmental concerns	Ethics / Appreciate individual ethical behavior and be able to discharge community responsibilities to the society	Leadership and Team work / Learn Leadership skills, Team work, and develop strong emotional and social aptitude to be a lifelong leaner.	Communication: Develop verbal and non-verbal communication skills for a successful career in Industry, Business and Entrepreneurship
Course Code	Course Title	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
ECO11019	**Public Economics**	3	3	-	2	-	3	-	-

1=weakly mapped
2= moderately mapped
3=strongly mapped