



**K.R. MANGALAM UNIVERSITY**  
THE COMPLETE WORLD OF EDUCATION

**SCHOOL OF Humanities**

**PROGRAMME HANDBOOK**

**B.A. (Hons. with Research) Economics (As Per NEP 2020)**

**Programme Code: 214**

**(Undergraduate Programme)**

**(2023-24)**



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## PREAMBLE

At K.R Mangalam University, we believe in the transformative power of education. Our curriculum is designed to equip the learners with the knowledge, skills, and competencies necessary for success in their chosen fields and to prepare them for the challenges of the ever-evolving global landscape. The foundation of our curriculum is rooted in a Learning Outcomes-Based Curricular Framework (LOCF) that ensures that the programmes are designed with clear learning objectives in mind, guiding the teaching and learning process to facilitate learner's growth and achievement. Our goal is to foster a holistic educational experience that not only imparts disciplinary knowledge but also nurtures critical thinking, problem-solving abilities, communication skills, and lifelong learning. The curriculum is aligned with the needs of the industry and the job market and is flexible enough to adapt to changing trends and technologies. It integrates cross-cutting issues relevant to professional ethics, gender, human values, environment and Sustainable Development Goals (SDGs). All academic programmes offered by the University focus on employability, entrepreneurship and skill development and their course syllabi are adequately revised to incorporate contemporary requirements based on feedback received from students, alumni, faculty, parents, employers, industry and academic experts.

We are committed to implementing the National Education Policy (NEP) 2020 in its entirety, and to creating a more inclusive, holistic, and relevant education system that will prepare our students for the challenges of the 21st century. With the focus on Outcome-Based Education (OBE), our university is continuously evolving an innovative, flexible, and multidisciplinary curriculum, allowing students to explore a creative combination of credit-based courses in variegated disciplines along with value-addition courses, Indian Knowledge Systems, vocational courses, projects in community engagement and service, value education, environmental education, and acquiring skill sets, thereby designing their own learning trajectory.

In recognition of the evolving landscape of higher education and the dynamic needs of our students and society, our institution has a long-standing commitment to academic excellence and the holistic development of our students. In pursuit of this commitment, we recognize the pressing need to offer an extended undergraduate program that goes beyond the conventional three-year model, providing students with a more profound and comprehensive education in the field of Economics. In line with the National Education Policy 2020's vision of implementing a curriculum for undergraduate studies based on the Choice-Based Credit System (CBCS), the primary aim of developing the B.A. (Hons with Research) in Economics curriculum is to provide students with a comprehensive grasp of the subject. This curriculum places significant emphasis on core content, skills, values, and the enhancement of abilities. It gives due recognition to the diverse range of knowledge within the field of Economics. The ultimate objective of this syllabus is to equip students with an in-depth understanding of the subject, thereby expanding their employment opportunities at all stages of their academic journey. Furthermore, it places considerable importance on acquainting students with new and evolving techniques and ensuring their comprehension of Economics in the context of a changing global landscape. We recognize that education is a lifelong journey. The four-year undergraduate program is designed not only to prepare our students for immediate career success but also to instill in them a passion for continuous learning, adaptability, and resilience in the face of ever-evolving economic challenges. This Programme Handbook serves as a roadmap for students and provides detailed information about the structure, learning outcomes, courses offered and assessment methods within the B.Ed. programme. We encourage all students to utilize this handbook as a valuable resource throughout their academic journey.

## PREFACE

The course curriculum of FYUP B.A. Economics (Hons with Research) under choice-based credit system (CBCS), Learning Outcome based Curriculum Framework (LOCF) is framed in this document. As a first step Syllabus of major course (Economics) and the entire course structure is prepared in this document. This exercise was undertaken as part of the nationwide curriculum restructuring initiative by the National Educational Policy-2020. focus on the attainment by the students of the expected graduate attributes, Programme Outcomes (POs) which lead to the attainment of the graduate attributes, and Course Outcomes (COs) which lead to the achievement of the Programme Outcomes ; ii) designing teaching-learning experience that enable students to achieve the expected graduate attributes and defined POs/COs; and iii) designing learning assessment methods/procedures that help assess progress towards achievement by the students of the expected COs/POs and graduate attributes.

Many formal and informal meetings were held by the committee taking the inputs from number of colleagues from the universities and colleges, who helped with crucial inputs as to the content of the course. The curriculum is new and updated which represents a continuous effort of deliberations with various stake holders.

A graduate possesses the ability to recognize issues and the factors underlying them, appreciates problem-solving skills, and employs logical problem-solving techniques effectively. They can identify the immediate needs of the community and actively contribute to addressing them. Graduates are adept at fostering inclusivity within the community, promoting a fair environment. They strive to create job opportunities and domains that cater to diverse skill sets and knowledge areas. They adapt seamlessly to various social and economic contexts, enhancing their own well-being and that of their communities. They envision and utilize different attitudes and skill sets to contribute to the improvement of the nation, leveraging local and regional variations to benefit the overall economy.

Concerted efforts are made to integrate content that nurtures students' capacities for problem-solving, critical thinking, analytical reasoning, model formulation, estimation, teamwork, and collaboration. the implementation of a four-year undergraduate program in Economics at K.R. Mangalam University signifies our unwavering commitment to academic excellence, research, multidisciplinary, and the holistic development of our students. It is a testament to our dedication to meeting the demands of the modern world and our alignment with the transformative vision of the National Education Policy 2020. Through this program, we aim to equip our students with the knowledge, skills, and mindset needed to excel as economists and global citizens, contributing to the betterment of society and the advancement of human knowledge.

## **1. UNIVERSITY VISION AND MISSION**

K.R. Mangalam University is the fastest-growing higher education institute in Gurugram, India. Since its inception in 2013, the University has been striving to fulfil its prime objective of transforming young lives through ground-breaking pedagogy, global collaborations, and world-class infrastructure.

Recognized for its virtues of quality, equality, inclusiveness, sustainability, and professional ethics, KRMU is synonymous with academic excellence and innovation.

### **1.1. VISION**

K.R Mangalam University aspires to become an internationally recognized institution of higher learning through excellence in inter-disciplinary education, research and innovation, preparing socially responsible life-long learners contributing to nation-building.

### **1.2 MISSION**

1. Foster employability and entrepreneurship through futuristic curriculum and progressive pedagogy with cutting-edge technology.
2. Instill notion of lifelong learning through stimulating research, outcomes-based education and innovative thinking.
3. Integrate global needs and expectations through collaborative programs with premier universities, research centers, industries and professional bodies.
4. Enhance leadership qualities among the youth having understanding of ethical values and environmental realities.

## **2. SCHOOL OF HUMANITIES (SOHS)**

### **2.1 About the School of Humanities**

Since 2015, School of Humanities, K.R. Mangalam University is an impeccable collaboration of genius faculty, start-of-the-art infrastructure, innovative pedagogy, and dynamic curriculum and non-curriculum activities. We work dedicatedly to instill liberal education amongst our students, encouraging them to adopt unique perceptions, impressive communication skills, apt social etiquettes, and an ethically conscious approach towards society and the nation. The school intends to build highly intellectual personalities who represent themselves as thought leaders on global platforms confidently. The school is staffed by a diverse and knowledgeable faculty who are experts in their respective disciplines.

## **3. SCHOOL VISION AND MISSION**

### **3.1 School Vision**

The School of Humanities, K.R. Mangalam University has the vision to equip the students with critical thinking, problem solving, creativity, and collaboration skills along with professional knowledge.

### **3.2 School Mission**

1. To promote cross-curricular innovation with a focus on developing a strong knowledge and skills base.
2. To contribute significantly towards the larger institutional mission of instilling lifelong learning.
3. To promote humanitarian goals of global peace, sensitivity and cooperation through inclusive and dynamic curriculum.
4. To promote analytical and critical research skills, scientific enquiry and creative thinking among the students.
5. To provide opportunities to acquire language proficiency and socio-cultural-philosophical awareness.
6. To promote awareness on socio-economic issues at regional, national, and global levels through cooperative learning reinforced by classroom teaching, experiential learning, and research.

## **4. INTRODUCTION TO B.A. (HONS. WITH RESEARCH) ECONOMICS**

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

### **4.1. Nature of B.A. (HONS. WITH RESEARCH) ECONOMICS**

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

### **4.2. Aims of B.A. (HONS. WITH RESEARCH) ECONOMICS**

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

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

The Learning Outcomes-based Curriculum Framework (LOCF) for B.A. (Hons with Research) in

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

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

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

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

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

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

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

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

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

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

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

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

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

## **5. 7. QUALIFICATION DESCRIPTORS FOR B.A. (HONS. WITH RESEARCH) ECONOMICS**

The students who complete two years of full-time study will be awarded a B.A. (HONS. WITH RESEARCH) ECONOMICS. Qualification descriptors for a B.A. (HONS. WITH RESEARCH) ECONOMICS program outline the knowledge, skills, and competencies that students are expected to acquire upon completion of the programme. These descriptors serve as benchmarks for assessing the readiness of graduates to enter the teaching profession and may include:

1. demonstrate a comprehensive understanding of the theories, principles, and concepts related to education.
2. possess in-depth knowledge and understanding of the subject(s) they are planning to teach.
3. design and deliver engaging and differentiated lessons, use appropriate teaching methods, utilize educational technologies, manage classroom dynamics, and assess student learning effectively.
4. engage in critical reflection on their own teaching practices and make informed decisions based on evidence.
5. engage in ongoing professional development to continuously improve their teaching effectiveness.
6. possess excellent communication and interpersonal skills, enabling them to effectively interact with students, colleagues, parents and other stakeholders.
7. implement strategies to support learners with special needs and students from diverse cultural, linguistic, and socio-economic backgrounds.
8. demonstrate a strong commitment to ethical and professional standards in the teaching profession.
9. assume leadership roles, contribute to educational initiatives, and engage in professional networks and communities of practice.

## **8. PROGRAMME EDUCATIONAL OBJECTIVES (PEO)**

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

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

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

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

**PEO 5:** To prepare the students to successfully compete for employment in Economics, industries, research methods, data analysis, policy making and entrepreneurship etc.

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



## 9. PROGRAMME OUTCOMES (PO)

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

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

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

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

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

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

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

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

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

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

## 10. PROGRAMME SPECIFIC OUTCOMES (PSO)

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

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

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

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

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

**PSO 6:** Create capacity to develop and evaluate economic models to solve various economic problems and suggest policy measures for the development of the economy.

**MAPPING OF SCHOOL VISION, MISSION WITH PROGRAMME OUTCOMES (PO) AND PROGRAMME SPECIFIC OUTCOMES(PSO)**

School Vision	School Mission	Programme Outcomes (PO)	Programme Specific Outcomes (PSO)
The School of Humanities, K.R. Mangalam University has the vision to equip the students with critical thinking, problem solving, creativity, and collaboration skills along with professional knowledge.	M 1	PO1, PO3, PO4, PO8, PO10	PSO1, PSO2, PSO4
	M 2	PO3, PO9, PO10	PSO5, PSO6, PSO7
	M 3	PO5, PO6, PO7	PSO3, PSO4, PSO7
	M 4	PO4, PO6, PO8, PO10	PSO 1, PSO 2, PSO 3, PSO 4, PSO5, PSO 6, PSO 7
	M5	PO5, PO6, PO7, PO9	PSO5, PSO7
	M6	PO1, PO3, PO5, PO6, PO7, PO10	PSO 1, PSO 2, PSO 3, PSO 4, PSO5, PSO 6, PSO 7

**11. PROGRAMME DURATION**

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

**12. EXIT OPTIONS**

Exit Option	Certificate/Diploma/Degree/ Honors
<b>1<sup>st</sup> year</b>	Certificate in Economics after completing one year in a discipline or field.
<b>2<sup>nd</sup> Year</b>	Diploma in Economics after completing two years of study in a discipline or field.
<b>3<sup>rd</sup> Year</b>	Bachelor's degree in Economics after completing a three-year program.

<b>4<sup>th</sup> Year</b>	B.A. Economics (Honours with Research) after completing four- year program.
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## **12. CAREER AVENUES**

Below are some of the excellent career avenues for the Economics graduates:

- Banker
- Market Analyst
- Stock market Broker
- Data Analyst
- Content Writer
- Business/ Economic Writer
- Research Assistant
- Investment Banker
- Researcher

Below are the top recruiters that offers students a chance to pursue their passion:

- Govt., Banks, Research Institutes
- NITI Ayog, World Bank, ADB etc.
- KPMG, Bank of America, IBM
- Accenture, Standard Chartered Bank
- Stock Market, other corporate sector

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### **13. ELIGIBILITY CRITERIA**

1. The student should have passed the 10+2 examination conducted by the Central Board of Secondary Education or equivalent examination from a recognized Board in Science with mathematics as one of the subjects and with an overall aggregate of 50% or more.
2. The reservation and relaxation for SC/ST/OBC/PwD and other categories shall be as per the rules of the Central Government/ State Government, whichever is applicable.

### **14. CLASS TIMINGS**

The class will be held from Monday to Friday from 9.10 A.M. to 4.00 P.M.

### **15. TEACHING- LEARNING PROCESS**

The teaching and pedagogy in the School of Humanities focus on fostering critical thinking, analytical skills, and a deep understanding of human culture, history, and society. The faculties foster and maintain a creative environment with a deep commitment to inculcate excellence in academics and contribute to student development through a focus on student-centric methods such as experiential learning, participative learning, problem-solving and ICT integration in the teaching-learning process. Collaborative learning strategies, such as group projects, presentations, and peer feedback, are utilized in the humanities. Students work together to explore complex topics, share insights, and develop teamwork and communication skills. Collaboration also fosters diverse perspectives and encourages students to learn from each other. Classroom discussions are also a key pedagogical tool in the humanities. Students engage in active dialogue, sharing interpretations, perspectives, and ideas. The Socratic method, involving questioning and probing, encourages critical thinking, reasoning, and the examination of assumptions.

### **16. ASSESSMENT METHODS**

Both formative and summative assessments are integral part of the programme. Formative assessments such as class discussions, group activities, projects, quizzes, assignments and presentations are conducted throughout the teaching-learning process, enabling teachers to monitor student progress continuously. Teachers provide oral or written feedback, engage in one-on-one discussions, and use rubrics and checklists to communicate student performance. Summative assessments such as Term End Examination, viva voce for project work, research dissertations and performance evaluations are conducted after the completion of the course.

### **17. MINIMUM ACCEPTABLE LEVEL OF ACADEMIC STANDARDS**

The minimum acceptable level of achievement that a student must demonstrate to be eligible for the award of academic credit or qualification is the minimum acceptable level of academic standards. The

Letter Grades and Grade Points which shall be used to reflect the outcome of the assessment process of the student's performance is indicated in Table 1.

**Table 1**

<b>Marks Range (%)</b>	<b>Letter Grade</b>	<b>Grade Points</b>	<b>Description of the Grade</b>
>90	O	10.0	Outstanding
80-90	A+	9.0	Excellent
70-80	A	8.0	Very Good
60-70	B+	7.0	Good
55-60	B	6.0	Above Average
50-55	C	5.5	Average
40-50	P	5.0	Pass
<40	F	0	Fail
-	AB	0	Absent
% marks $\geq$ 50	S	-	Satisfactory
% marks <50	US	-	Unsatisfactory
	W	0	Withdrawal

## **18. PROGRAMME STRUCTURE**

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

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

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

S.No	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs.
1		Micro Economics-I	Major (DSC)	4	3	1	0	4
2		Macro Economics-I	Major (DSC)	4	3	1	0	4
3		Mathematical methods for Economics-I	Major DSC	4	3	1	0	4
4		Minor 1	Minor	4	2	0	4	6
5		VAC 1 (EVS & DM)	VAC	2	2	0	0	1
6		AEC-2	AEC	3	3	0	0	3
7		SEC 1	SEC	2	1	0	2	3
<b>Total Credit = 23</b>								<b>25</b>

**Second Semester**

S.No	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs.
1		Micro Economics- II	Major DSC	4	3	1	0	4
2		Macro Economics- II	Major (DSC)	4	3	1	0	4
3		Mathematical methods for Economics-II	Major DSC	4	3	1	0	4
4		Minor 2	Minor	4	2	0	4	6
5		VAC 2 (Extension & Outreach Based)	VAC	2	-	-	-	-
6		1 from pool of University	OE	3	3	0	0	3
7		AEC-2	AEC	3	3	0	0	3
<b>Total Credit = 24</b>								<b>24</b>
<b>Undergraduate Certificate in Economics (Total Credit =47)</b>								
<b>Summer Internship (2 Credit)</b>								

### Third Semester

S.NO	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs
1		Economics of Growth & Development-I	Major DSC	4	3	1	0	4
2		Statistical Methods for Economics	Major (DSC)	4	3	1	0	4
3		Statistical Methods for Economics- Practical	Major DSC	1	0	0	1	2
4		Minor 3	Minor	4	2	0	4	6
5		VAC 3 from pool of University	VAC	2	2	0	0	2
6		1 from pool of University (Inter-Disciplinary)	OE	3	3	0	0	3
7		AEC 3	AEC	3	3	0	0	3
8		Evaluation of Summer Internship		2	-	-	-	
<b>Total Credit = 23</b>								<b>24</b>

### Fourth Semester

S.No	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs
1		Economics of Growth & Development-II	Major DSC	4	3	1	0	4
2		Basic Econometrics	Major DSC	4	3	1	0	4
3		Econometrics Laboratory	Major DSC	1	0	0	1	1
4		DSE 1	Major (DSE)	4	3	1	0	4
5		Minor 4	Minor	4	2	0	4	6
6		1 from pool of University (Inter-Disciplinary)	OE	3	3	0	0	3
7		VAC 4 from pool of University	VAC	2	2	0	0	2
8		SEC 2	SEC	2	1	0	2	3

	Total = 24	<b>27</b>
	<b>Undergraduate Diploma in Economics (Total Credit = 93)</b>	
	Summer Internship = 2 Credit	

#### Fifth Semester

S.NO	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs
1		Public Finance	Major (DSC)	4	3	1	0	4
2		Minor 5	Minor	4	2	0	4	6
3		DSE 2	Major DSE	4	3	1	0	4
4		DSE 3	Major DSE	4	3	1	0	4
5		SEC 3	SEC	2	2	0	0	2
6		Evaluation of Summer Internship		2	-	-	-	-
		<b>Total Credit = 20</b>						<b>20</b>

#### Sixth Semester

S.NO	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs
1		Indian Economy	Major DSC	4	3	1	0	4
2		History of Economic Ideas	Major (DSC)	4	3	1	0	4
3		Data Analysis of Indian Economy-Practical	Major DSC	1	0	0	1	2
4		Minor 6	Minor	4	2	0	4	6
5		DSE 4	Major DSE	4	3	1	0	4
6		SEC 4	SEC	2	2	0	0	2
		<b>Total Credit = 19</b>						<b>22</b>

**Bachelors of Arts in Economics (Total Credit = 133)**



### Seventh Semester

S.No	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs
1		Research Methodology for Economics	Major DSC	4	3	1	0	4
2		International Trade & Finance	Major DSC	4	3	1	0	4
3		Minor 7	Minor	4	2	0	4	6
4		DSE 5	Major DSE	4	3	1	0	4
<b>Total Credit = 16</b>								<b>18</b>

### Eighth Semester

S.No	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs
1		Minor 8	Minor	4	2	0	4	6
2		Dissertation/Research Project	Research Project	12	-	-	-	
<b>Total Credit = 16</b>								<b>5</b>
<b>Grand Total = 165</b>								
<b>B.A. (Hons with Research) in Economics with Minor Data Science</b>								

### List of Minor Subjects

<b>1. Data Sciences</b>	UDT	I	Data Analytics Using SQL	UDT101
		II	Data Analytics Using R	UDT102
		III	Python For Data Science	UDT103
		IV	Data Preprocessing And Visualization Using Python	UDT104
		V	Time Series Analysis & Forecasting Using Python	UDT105

		VI	Fundamental Of Machine Learning	UDT106
		VII	Data Driven Applications	UDT107
		VIII	Project And Case Study	UDT108

<b>2. Media Studies</b>	UMS	I	Understanding Media	UMS101
		II	Media Ethics and Laws	UMS102
		III	Reporting and Editing for Print	UMS103
		IV	Advertising and Integrated Marketing Communication	UMS104
		V	Public Relation and Corporate Communication	UMS105
		VI	Media, Development and Society	UMS106
		VII	Film Appreciation and Cinema Studies	UMS107
		VIII	Global Media Scenario	UMS108

<b>3.Education</b>	UED	I	Foundations of Education	UED101
		II	Educational Psychology	UED 102
		III	Measurement and Evaluation of Learner	UED 103
		IV	Diversity and Inclusive Education	UED 104
		V	Guidance and Counseling	UED 105
		VI	Applied Behaviour Analysis in Education	UED 106
		VII	Educational Intervention and Teaching Strategies : Intellectual Disability	UED 107
		VIII	Educational Intervention and Teaching Strategies : Learning Disability	UED 108

<b>4.Human Resource Management</b>	UHR	I	Foundations in Organizational Behaviour	UHR101
		II	Professional HRM Practices	UHR102
		III	Psychological Assessment in Organizations	UHR103

		IV	Learning and Development in Organizations	UHR104
		V	Leadership and Talent Development	UHR105
		VI	Counseling at Workplace	UHR106
		VII	Change Management and OD Interventions	UHR107
		VIII	Total Rewards Management	UHR108

<b>5.Foreign Trade</b>	UFT	I	Basics of Business	UFT101
		II	The Global Economy	UFT102
		III	International Business Environment	UFT103
		IV	Macroeconomics of open economies	UFT104
		V	Global Political Economy	UFT105
		VI	Growth Inequality and Conflict	UFT106
		VII	Foreign Trade	UFT107
		VIII	International Financial Institutions	UFT108

<b>6. Psychology</b>	UPS	I	Foundations of Psychology	UPS101
		II	Fundamentals of Social Psychology	UPS102
		III	Developmental Psychology	UPS103
		IV	Counseling and Guidance	UPS104
		V	Health Psychology	UPS105
		VI	Environmental Psychology	UPS106
		VII	Positive Psychology	UPS107
		VII	Media Psychology	UPS108

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

<b>S.No</b>	<b>Course Code</b>	<b>Course Name</b>	<b>Category of Course</b>	<b>Credit</b>
1	HUES101	Micro Economics-I	Major (DSC)	4
2	HUES103	Macro Economics-I	Major (DSC)	4

3	HUES105	Mathematical methods for Economics-I	Major DSC	4
4	UDT101	Data Analysis using SQL	Minor	4
5		VAC 1 (EVS & DM)	VAC	2
6	AEC001	AEC-2	AEC	3
7	SEC001	SEC 1	SEC	2
Total				23

### **Micro Economics-I**

<b>UCES101</b>	<b><u>Micro Economics-I</u></b>	L	T	P	C
<b>Version 1.0</b>		3	1	0	4
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>					

#### **Course Objectives**

The main objective of the course is to:

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

#### **Course outcome**

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

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

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

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

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

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

#### **Syllabus**

Unit-1 **Basic Economic Concepts**

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

**Unit-2 Consumer Behavior**

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

**Unit 3: Production and Costs**

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

**Unit 4: Market Structure**

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

**Suggested readings**

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

**Assessment & Evaluation**

Components	Assignment	Mid Term Examination	Attendance	End Term Examination
<b>Weightage (%)</b>	<b>20</b>	<b>20</b>	<b>10</b>	<b>50</b>

**Programme & Course Mapping**

Programme and Course Mapping																
CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PS	PS	PS	PS	PS

	1	2	3	4	5	6	7	8	9	10	O1	O2	O3	O4	O5	O6
CO 1	3			3	2			3	3			3	3	2	2	
CO 2	3			3	2			3	3			3	3	2	2	3
CO 3	3			3	2	2		3	3			3	3	2	2	
CO 4	3			3	2	2		3	3			3	3	2	2	
CO 5	3			3	3	2		3	3			3	3	2	2	
CO 6	3			3	3	2		3	3			3	3	2	2	
	1=lightly mapped			2= moderately mapped						3=strongly mapped						

### RELEVANCE OF THE COURSE TO VARIOUS INDICATORS

<b>Unit I</b>	<b>Basic Concepts</b>
Local	Scope of economics
Regional	Scope of economics
National	Stability Analysis, Scope of economics
Global	Scope of economics
Employability	Stability Analysis, Concept of equilibrium
Entrepreneurship	Concept of equilibrium, Stability Analysis
Skill Development	Stability Analysis, Concept of equilibrium
Professional Ethics	Scope of economics
Gender	
Human Values	Scope of economics
Environment & Sustainability	Opportunity Cost, Production possibility Frontier, Concept of equilibrium
<b>Unit II</b>	<b>Consumer Behaviour</b>
Local	Consumer equilibrium
Regional	Consumer equilibrium
National	Consumer equilibrium
Global	Consumer equilibrium
Employability	Utility Analysis, Consumer equilibrium, Indifference Curve
Entrepreneurship	Utility Analysis, Consumer equilibrium, Indifference Curve
Skill Development	Utility Analysis, Consumer equilibrium, Indifference Curve
Professional Ethics	Utility Analysis
Gender	
Human Values	
Environment & Sustainability	Intertemporal Choice

<b>Unit III</b>	<b>Production and Costs</b>
Local	Economies of scope, Production function
Regional	Economies of scope, Production function
National	Economies of scope, Production function
Global	Economies of scope, Production function
Employability	Economies and diseconomies of scale, producer's equilibrium, Short run and long run cost, Production function
Entrepreneurship	Economies and diseconomies of scale, producer's equilibrium, Short run and long run cost, Production function
Skill Development	Economies and diseconomies of scale, producer's equilibrium, Short run and long run cost, Production function
Professional Ethics	
Gender	
Human Values	Learning curve
Environment & Sustainability	Production with variable inputs
<b>Unit IV</b>	<b>Market Structure</b>
Local	Welfare effects of pricing process
Regional	Welfare effects of pricing process
National	Welfare effects of pricing process, Types of market structure
Global	Welfare effects of pricing process, Types of market structure
Employability	Pricing process and equilibrium of firm
Entrepreneurship	Pricing process and equilibrium of firm
Skill Development	Pricing process and equilibrium of firm
Professional Ethics	
Gender	
Human Values	Welfare effects of pricing process
Environment & Sustainability	Welfare effects of pricing process, Types of market structure
SDG	SDG4, SDG, SDG8,SDG12
NEP 2020	Lifelong learning, Holistic learning, practical education
POE/4 <sup>th</sup> IR	Skill development, Employability

### **MACRO ECONOMICS-I**

<b>UCES103</b>	<b><u>Macro Economics-I</u></b>	L	T	P	C
<b>Version 1.0</b>		3	1	0	4
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>					

## **Course Objectives**

The main objective of the course is to:

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

## **Course outcome**

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

## **Syllabus**

### **Unit 1 Measurement of Macroeconomic Variables**

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

### **Unit 2: Determination of Income and Employment**

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

### **Unit 3: Aggregate Spending**

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

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



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

**Suggested readings**

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

Assessment & Evaluation

Components	Assignment	Mid Term Examination	Attendance	End Term Examination
<b>Weightage (%)</b>	<b>20</b>	<b>20</b>	<b>10</b>	<b>50</b>

**Programme & Course Handbook**

Programme and Course Mapping																		
CO	P O 1	P O 2	P O 3	P O 4	P O 5	P O 6	P O 7	P O 8	P O 9	PO 10	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6		
CO1	3			3	3			3	2			3	3		2			
CO2	3			3	3			3	2			3	3		2			
CO3	3			3	3			3	2			3	3		2	2		
CO4	3			3	3			2	3			3	2			3	3	2
CO5	3			3	3			3	2			3	3		2			
CO6	3			3	2			3	3			3	3	2				
	1=lightly mapped					2= moderately mapped					3=strongly mapped							

### Relevance of the Course with Different Indicator

Unit I	Measurement of Macroeconomic Variables
Local	Circular flow
Regional	Circular flow
National	Meaning of macroeconomics, Green accounting
Global	Meaning of macroeconomics, Green accounting
Employability	Measurement of GDP, Circular flow
Entrepreneurship	Measurement of GDP, Circular flow
Skill Development	Measurement of GDP, Circular flow
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	Green accounting
Unit II	Determination of Income and Employment
Local	
Regional	
National	
Global	Theory of employment, Classical Model, Keynesian Model
Employability	Classical Model, Keynesian Model, Saving and investment
Entrepreneurship	Saving and investment, Classical Model, Keynesian Model
Skill Development	Theory of employment, Classical Model, Keynesian Model
Professional Ethics	
Gender	
Human Values	Theory of employment
Environment & Sustainability	Classical Model, Keynesian Model
Unit III	Aggregate Spending
Local	
Regional	Theories of consumption
National	Theories of consumption
Global	Theories of consumption
Employability	Theories of consumption, Theory of investment, Investment multiplier
Entrepreneurship	Theories of consumption, Theory of investment, Investment multiplier
Skill Development	Theories of consumption, Theory of investment, Investment multiplier
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	Theories of consumption

Unit IV	<b>Monetary Approach: Demand &amp; Supply of Money</b>
Local	
Regional	
National	Theory of money demand, IS – LM Curves, Determination of General Equilibrium
Global	Determination of General Equilibrium
Employability	Theory of money demand, IS – LM Curves
Entrepreneurship	Theory of money demand, IS – LM Curves
Skill Development	Theory of money demand, IS – LM Curves
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	Determination of General Equilibrium
SDG	SDG4, SDG12, SDG8,SDG9
NEP 2020	Integrated learning, Holistic learning, lifelong learning, Inclusive education
POE/4 <sup>th</sup> IR	Entrepreneurship, Employability, Skill development

### **Mathematical methods for Economics-I**

<b>UCES105</b>	<b><u>Mathematical methods for Economics-I</u></b>	L	T	P	C
<b>Version 1.0</b>		3	1	0	4
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>					

#### **Course Objectives**

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

#### **Course outcome**

- CO1. Understand the importance of number system and its properties.
- CO2. Apply function of one variable and its various characteristics.
- CO3. Implement optimization techniques used for maximizing profit and minimizing cost.
- CO4. Use algebraic and geometric properties of vector spaces.

CO5. Apply mathematical techniques to economic theory in general.

CO6. Use mathematics for research purposes.

## **Syllabus**

### **Unit-1: Basic Concepts**

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

### **Unit 2: Matrices & its Economic Application**

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

### **Unit 3: Calculus**

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

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

### **Unit 4: Optimization Problem**

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

### **Suggested readings**

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

### **Assessment & Evaluation**

<b>Components</b>	<b>Assignment</b>	<b>Mid Term Examination</b>	<b>Attendance</b>	<b>End Term Examination</b>
<b>Weightage (%)</b>	<b>20</b>	<b>20</b>	<b>10</b>	<b>50</b>

### **Programme & Course Mapping**

#### **Programme and Course Mapping**

<b>CO</b>	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO10</b>	<b>PSO 1</b>	<b>PSO 2</b>	<b>PSO 3</b>	<b>PSO 4</b>	<b>PSO 5</b>	<b>PSO 6</b>
<b>CO 1</b>	<b>3</b>			<b>3</b>	<b>2</b>				<b>2</b>	<b>2</b>		<b>3</b>	<b>3</b>			<b>3</b>

CO 2	3			3									3			2
CO 3	3			3												
CO 4	3			3					2				3			2
CO 5	3			2									2		2	
CO 6	3			3	2								3		2	
		1=lightly mapped			2= moderately mapped					3=strongly mapped						

### Relevance of Different Course with Indicators

Unit I	Basic Concepts
Local	
Regional	
National	Interpretation of graph
Global	Interpretation of graph
Employability	Variables & Parameters , Functions and their graph, Types of equations, concept of slope
Entrepreneurship	Variables & Parameters , Functions and their graph, Types of equations, concept of slope
Skill Development	Variables & Parameters , Functions and their graph, Types of equations, concept of slope
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	
Unit II	Matrices and it's Economic Application
Local	Input – Output Analysis
Regional	Input- Output Analysis
National	Input – Output analysis
Global	Input – Output Analysis
Employability	Types of matrices, Matrix operation, Input – output analysis
Entrepreneurship	Types of matrices, Matrix operation, Input – output analysis
Skill Development	Types of matrices, Matrix operation, Input – output analysis
Professional Ethics	
Gender	
Human Values	

Environment & Sustainability	Input – Output Analysis
<b>Unit III</b>	<b>Calculus</b>
Local	Production function, elasticity
Regional	Production function, elasticity
National	Production function , elasticity

Weekly Teaching Plan	Topic/Unit No.	Textbook [TB]/ Reference Book [RB]-Chapter/ Page No./ Open Education Resources [OER]	Teaching-Learning Method
Global		Production function , elasticity	
Employability		Types of series, present value , differentiation, rate of growth	
Entrepreneurship		Types of series, present value , differentiation, rate of growth	
Skill Development		Types of series, present value , differentiation, rate of growth	
Professional Ethics			
Gender			
Human Values		Elasticity	
Environment & Sustainability		Production function, elasticity	
<b>Unit IV</b>		<b>Optimization Problem</b>	
Local			
Regional			
National			
Global			
Employability		Maxima and minima, constrained optimization	
Entrepreneurship		Maxima and minima, constrained optimization	
Skill Development		Maxima and minima, constrained optimization	
Professional Ethics			
Gender			
Human Values			
Environment & Sustainability			
SDG		SDG4, SDG12, SDG8,SDG9	
NEP 2020		Integrated learning, Holistic learning, lifelong learning, Inclusive education	
POE/4 <sup>th</sup> IR		Vocational education,Entrepreneurship, Employability, Skill development	

## New Age Life Skills-I

Course Code	Course Title	L	T	P	S	Credit
	New Age Life skills - I	3				3
Pre-requisites/Exposure						

### **COURSE OBJECTIVES:**

- To enable learners organize and summarize information clearly and logically
- To develop and build upon their abilities in listening reading and speaking skills.
- To Organize and express ideas in writing in a coherent and pertinent manner in formal setting.
- To Implement the acquired knowledge to imbibe qualities of a Leader
- To recognize the interrelationship between theory and practice apply such knowledge for development.
- To enhance verbal and written communication skills, including clarity, articulation, active listening, and effective presentation skills.

### **COURSE OUTCOME (COs)**

On completion of the course learner should be able to: -

- CO1 Develop self confidence in their communication abilities and enabling them to express themselves assertively.
- CO 2 Enhance the ability for advanced critical thinking and the ability to formulate logical arguments.
- CO 3 Describe different value systems and moral dimensions while taking decisions.
- CO 4 Include attributes and personality traits that help learner to interact with others and succeed.
- CO 5 Cultivate self-confidence, problem solving and critical thinking abilities

### **CATALOUGE DESCRIPTION:**

New Age Life Skills' course is designed for learner to enhance and develop interpersonal skills that characterize a person's relationships with other professionals. This program will teach skills which will prepare them for a successful career in their industry. The main topics will include verbal communicational

skills, non- verbal communication skills, Active listening skills, written communication skills and presentation skills. They will also develop active listening skills, enabling them to understand others and respond appropriately. Learners will demonstrate proficiency in interpersonal communication, fostering positive relationships and resolving conflicts. Additionally, they will exhibit cross-cultural competence, adapting their communication styles to diverse audiences.

### **COURSE TOPICS:**

Unit Number: 1      Title: **Effective Communication Skills**

Content Summary: Verbal Communication Skills: speaking clearly, using appropriate language

and tone, and expressing ideas effectively, Non-Verbal Communication Skills: Body Language Facial Expressions, Posture, Eye Contact, and Gestures, Active Listening Skills: Understanding and Reporting to Other's Messages, Interpersonal Skills: Building Rapport, Empathy, and Resolving Conflicts

Unit Number: 2 Title: **Personality development**

Content Summary: - Etiquettes and Manners, Attitude, Self Esteem & Self Reliance, Public Speaking, Work Habits, Presentation Skills/Techniques

Unit Number: 3 Title: **Mindset and Resilience**

Content Summary: Knowing and experiencing self, Developing a growth mindset, Strategies for overcoming obstacles and setbacks, Cultivating Resilience and Adaptability

Unit Number: 4 Title: **Enhancing Spoken Skills**

Content Summary: Vocabulary & Pronunciation improvement, Verbal Ability Qs & Ans, Delivery of speech, Motivation, Assertiveness, Confidence building, Story narration, Book review.

**Text Book and References**

- Bayer, Mike (2019), Best Self
- Gladwell Malcom, (2021), Talking to strangers
- Scot Susan (2004), Fierce conversations

**Mode of Evaluation:**

Components	Quiz 1	Attendance	Mid Term	Presentation/Assignment	End Term
Weightage (%)	10	10	20	10	50

**Program Mapping – PO to CO's**

New Age Life skills – I

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	
CO 1																							
CO 2																							
CO 3						3																	2
CO 4																3							3
CO 5				3																			

1=lightly mapped 2= moderately mapped 3=strongly mapped

Assessment & Evaluation

Components	Assignment	Mid Term Examination	Attendance	End Term Examination
Weightage (%)	20	20	10	50



## Environmental Studies and Disaster Management

	<b>Environmental Studies and Disaster Management</b>	L	T	P	C
<b>Version 3.0</b>		2	0	0	2
<b>Pre-requisites/Exposure</b>	Basics of Environment				
<b>Co-requisites</b>	--				

### Course Content

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#### UNIT I

8 Lectures

##### **Environment and Natural Resources:**

Multidisciplinary nature of environmental sciences; Scope and importance; Need for public awareness.

Land resources; land use change; Land degradation, soil erosion and desertification.

Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.

Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state).

Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.

**Carbon Footprints.**

#### UNIT II

15 Lectures

##### **Environmental Pollution and Environmental Policies:**

Environmental pollution: types, causes, effects and controls; Air, water, soil and noise pollution

Nuclear hazards and human health risks; Solid waste management: Control measures of urban and industrial waste; Pollution case studies.

Sustainability and sustainable development; Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture; Environment Laws: Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; wildlife Protection Act; Forest Conservation Act; Nature reserves, tribal populations

and rights, and human wildlife conflicts in Indian context. Fundamentals and Application of ESG (Environment Social Governance).

### **UNIT III**

**10 Lectures**

#### **Introduction to Disasters:**

Concept and definitions- Disaster, Hazard, vulnerability, resilience, risks.

Different Types of Disaster: Causes, effects and practical examples for all disasters. Natural Disaster: such as Flood, Cyclone, Earthquakes, Landslides etc. Man-made Disaster: such as Fire, Industrial Pollution, Nuclear Disaster, Biological Disasters, Accidents (Air, Sea, Rail & Road), Structural failures (Building and Bridge), War & Terrorism etc.

### **UNIT- IV**

**10 Lectures**

Disaster Preparedness Plan, Prediction, Early Warnings and Safety Measures of Disaster, Role of Government, International and NGO Bodies in Disaster Preparedness.

Reconstruction and Rehabilitation, Post Disaster effects and Remedial Measures

Disaster Management Act, 2005: Disaster management framework in India before and after Disaster Management Act, 2005,

Applications of AI and ML in Disaster Management and risk predictions.

#### **Text Books**

1. Content building programme (CBP) book on Disaster Management, Forum AS.
2. Kaushik and Kaushik, Environmental Studies, New Age International Publishers (P) Ltd. New Delhi.

#### **Reference Books/Materials**

1. A.K. De, Environmental Chemistry, New Age International Publishers (P) Ltd. New Delhi.
2. S.E. Manahan, Environmental Chemistry, CRC Press.
3. S.S Dara and D.D. Mishra, Environmental Chemistry and Pollution Control, S.Chand & Company Ltd, New Delhi.
4. R. Gadi, S. Rattan, S. Mohapatra, Environmental Studies Kataria Publishers, New Delhi.
1. Government of India, Department of Environment, Management of Hazardous Substances Control
2. Act and Structure and Functions of Authority Created Thereunder.
3. Indian Chemical Manufacturers' Association & Loss Prevention Society of India, Proceedings of the National Seminar on Safety in Road Transportation of Hazardous Materials: (1986).
4. Author Title Publication Dr. Mrinalini Pandey Disaster Management Wiley India Pvt. Ltd.

5. Tushar Bhattacharya Disaster Science and Management McGraw Hill Education (India) Pvt. Ltd.
6. Jagbir Singh Disaster Management: Future Challenges and Opportunities K W Publishers Pvt. Ltd.
7. J. P. Singhal Disaster Management Laxmi Publications.
8. Shailesh Shukla, Shamna Hussain Biodiversity, Environment and Disaster Management Unique Publications
9. C. K. Rajan, Navale Pandharinath Earth and Atmospheric Disaster Management: Nature and Manmade B S Publication
10. Indian law Institute (Upendra Baxi and Thomas Paul (ed.), Mass Disasters and Multinational Liability: The Bhopal Case (1986)
11. Indian Law Institute, Upendra Baxi (ed.), Environment Protection Act: An Agenda for Implementation (1987)
12. Asian Regional Exchange for Prof. Baxi., Nothing to Lose But our Lives: Empowerment to Oppose
13. Industrial Hazards in a Transnational world (1989)
14. Gurudip Singh, Environmental Law: International and National Perspectives (1995), Lawman (India) Pvt. Ltd.
15. Leela Krishnan, P, The Environmental Law in India, Chapters VIII, IX and X (1999), Butterworths, New Delhi.

#### **SEC001 Microsoft Excel-Refresher to Advanced**

<b>Course Name:</b>	<b>Course Code</b>	<b>L-T-P</b>	<b>Credits</b>
<b>Microsoft Excel-Refresher to Advanced</b>	<b>SEC001</b>	0-0-1	1
<b>Course Teacher:</b> Dr. Preeti Rathi			

#### **COURSE OBJECTIVES**

1. To learn how to create spread sheet in excel.
2. To learn how to use formulas.
3. To learn how to design graphs using tables.
4. To implement conditional formatting in cells.
5. To learn how to use lookup and references.

## COURSE OUTCOMES (COs)

CO1	Demonstrating the basic mechanics and navigation of an Excel spreadsheet
CO2	Learning the use and utility of functions and formulas on excel spreadsheet
CO3	Learning formulas, creating charts and graphs that can easily explain or simplify complex information or data.
CO4	Analyzing data using Pivot Tables and Pivot Charts.
CO5	Manipulate data using data names and ranges, filters and sort, and validation lists

## Syllabus

<b>Brief Syllabus:</b> This course aims to deliver basic and advanced concepts of ms excel and its implementation. The students will become familiar with the concepts of functions, graphs, formatting tools and formulas.		
<b>UNIT WISE DETAILS</b>		
<b>Unit Number:</b> 1	<b>Title:</b> Basic of MS Excel	
<b>Content Summary:</b> Introduction to MS Excel, Sheet, Cell, worksheet, menu bar, title bar, tabs.		
<b>Unit Number:</b> 2	<b>Title:</b> Formatting in MS Excel	
<b>Content Summary:</b> Alignment, conditional formatting, table, lookup.		
<b>Unit Number:</b> 3	<b>Title:</b> Functions & Formulas	
<b>Content Summary:</b> Function: Sum, Count, Average, Max, Min, Upper, Lower, Power, logical functions, if-else function.		
<b>Unit Number:</b> 4	<b>Title:</b> Graphs	

**Content Summary:**

Graph: 2D, 3D, Pivot Table.

**Text Books**

1. Microsoft Office – Complete Reference – BPB Publication
2. Learn Microsoft Office – Russell A. Stultz – BPB Publication
4. Koers, D (2001). Microsoft Office XP Fast and Easy. PHI.

**Reference Books/Materials**

1. Courter, G Marquis (1999). Microsoft Office 2000: Professional Edition. BPB.
2. Nelson, S L and Kelly, J (2002). Office XP: The Complete Reference. Tata McGrawHill.

**Second Semester**

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

**Micro Economics-II**

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

### Course Objectives

The main objective of the course is to:

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

### Course outcome

CO1: Understand theory of distribution of income and factor payments.

CO2: Explain concepts and theories of welfare economics.

CO3: Analyse market equilibrium conditions and economic efficiency.

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

CO5 Describe the welfare economics approach to understanding decision making.

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

### Syllabus

#### **Unit 1: Market Structure & Game Theory**

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

#### **Unit 2: Theories of Distribution**

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

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

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

#### **Unit 4: Market Failure**

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

**Suggested readings**

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

**Assessment & Evaluation**

Components	Assignment	Mid Term Examination	Attendance	End Term Examination
Weightage (%)	20	20	10	50

**Programme & Course Mapping**

**Programme and Course Mapping**

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO 1	3			3	2			3	3			3	3	2	2	
CO 2	3			3	2			3	3			3	3	2	2	3
CO 3	3			3	2	2		3	3			3	3	2	2	
CO 4	3			3	2	2		3	3			3	3	2	2	
CO 5	3			3	3	2		3	3			3	3	2	2	
CO 6	3			3	3	2		3	3			3	3	2	2	
	1=lightly mapped			2= moderately mapped				3=strongly mapped								

**Relevance of the Course with Indicator**

Unit I	Market Structure & Game Theory
Local	
Regional	

National	Oligopoly- Non Collusive and Collusive, Theory of games
Global	
Employability	Oligopoly- Non Collusive and Collusive, Theory of games
Entrepreneurship	Oligopoly- Non Collusive and Collusive, Theory of games
Skill Development	Oligopoly- Non Collusive and Collusive, Theory of games
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	Theory of Games
<b>Unit II</b>	<b>Theories of Distribution</b>
Local	Product market, factor market
Regional	Product market, factor market
National	Neoclassical theory of rent, Product market, factor market
Global	Product market, factor market, Neoclassical theory of rent
Employability	Theory of wage determination under competitive market
Entrepreneurship	Theory of wage determination under competitive market
Skill Development	Neoclassical theory of rent, Product market, factor market
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	Product market, factor market
<b>Unit III</b>	<b>General equilibrium, efficiency and welfare</b>
Local	Concept of Welfare, Equilibrium and efficiency
Regional	Concept of Welfare, Equilibrium and efficiency
National	Concept of Welfare, Equilibrium and efficiency
Global	Concept of Welfare, Equilibrium and efficiency
Employability	Pareto Optimality, Utility frontier, Partial and General equilibrium Conditions
Entrepreneurship	Pareto Optimality, Utility frontier, Partial and General equilibrium Conditions
Skill Development	Pareto Optimality, Utility frontier, Partial and General equilibrium Conditions
Professional Ethics	
Gender	
Human Values	Equilibrium and efficiency, Concept of Welfare
Environment & Sustainability	Concept of Welfare, Equilibrium and efficiency
<b>Unit IV</b>	<b>Market Failure</b>
Local	Externalities; public goods



Regional	Externalities; public goods
National	Concept of Market Failure, Externalities; public goods
Global	Concept of Market Failure, Externalities; public goods
Employability	Concept of Market Failure, Externalities; public goods
Entrepreneurship	Concept of Market Failure, Externalities; public goods
Skill Development	Concept of Market Failure, Externalities; public goods
Professional Ethics	
Gender	
Human Values	Externalities; public goods
Environment & Sustainability	Externalities; public goods
SDG	SDG4, SDG, SDG8,SDG12
NEP 2020	Lifelong learning, Holistic learning, practical education
POE/4 <sup>th</sup> IR	Skill development, Employability

### Macro Economics- II

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

#### Course Objectives

The main objective of the course is to:

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

#### Course outcome

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

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

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

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

CO5 Understand the theory and causes of business cycles.

CO6 Understand equilibrium in closed and open economy.

**Syllabus**

**Unit 1: Inflation & Unemployment**

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

**Unit 2: Monetary and Fiscal Policy**

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

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

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

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

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

**Suggested readings**

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

<b>Programme and Course Mapping</b>																
<b>CO</b>	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO 10</b>	<b>PS O1</b>	<b>PS O2</b>	<b>PS O3</b>	<b>PS O4</b>	<b>PS O5</b>	<b>PS O6</b>
<b>CO 1</b>	3			3	2			3	3			3	3	2	2	
<b>CO 2</b>	3			3	2			3	3			3	3	2	2	3
<b>CO 3</b>	3			3	2	2		3	3			3	3	2	2	
<b>CO 4</b>	3			3	2	2		3	3			3	3	2	2	
<b>CO 5</b>	3			3	3	2		3	3			3	3	2	2	

CO 6	3			3	3	2		3	3			3	3	2	2	
	1=lightly mapped			2= moderately mapped				3=strongly mapped								

<b>Unit I</b>	<b>Inflation &amp; Unemployment</b>
Local	Causes and effects of inflation, theories of inflation
Regional	Causes and effects of inflation, theories of inflation
National	Causes and effects of inflation, theories of inflation, Inflation and unemployment
Global	Causes and effects of inflation, theories of inflation, Inflation and unemployment
Employability	Inflation and unemployment
Entrepreneurship	Inflation and unemployment
Skill Development	Causes and effects of inflation, theories of inflation, Inflation and unemployment
Professional Ethics	
Gender	
Human Values	Inflation and unemployment
Environment & Sustainability	Causes and effects of inflation, theories of inflation
<b>Unit II</b>	<b>Monetary and Fiscal Policy</b>
Local	Role of Fiscal and monetary policy in development
Regional	Role of Fiscal and monetary policy in development
National	Fiscal and Monetary policy, Role of Fiscal and monetary policy in development
Global	Fiscal and Monetary policy, Role of Fiscal and monetary policy in development
Employability	Fiscal and Monetary policy, Role of Fiscal and monetary policy in development
Entrepreneurship	Fiscal and Monetary policy, Role of Fiscal and monetary policy in development
Skill Development	Fiscal and Monetary policy, Role of Fiscal and monetary policy in development
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	Role of Fiscal and monetary policy in development
<b>Unit III</b>	<b>Business Cycle and Growth Models</b>
Local	
Regional	
National	Introduction to trade cycle, Theories of trade cycle
Global	Introduction to trade cycle, Theories of trade cycle
Employability	Growth Models, Introduction to trade cycle, Theories of trade cycle

Entrepreneurship	Growth Models, Introduction to trade cycle, Theories of trade cycle
Skill Development	Growth Models, Introduction to trade cycle, Theories of trade cycle
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	Growth Models
<b>Unit IV</b>	<b>Balance of Payment and Open Economy Adjustment</b>
Local	
Regional	
National	BoP Adjustments
Global	Exchange rate determination, Mundel Fleming Model, BoP Adjustments
Employability	Exchange rate determination, Mundel Fleming Model, BoP Adjustments
Entrepreneurship	Exchange rate determination, Mundel Fleming Model, BoP Adjustments
Skill Development	Exchange rate determination, Mundel Fleming Model, BoP Adjustments
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	Mundel Fleming Model
SDG	SDG4, SDG12, SDG8, SDG9
NEP 2020	Integrated learning, Holistic learning, lifelong learning, Inclusive education
POE/4 <sup>th</sup> IR	Entrepreneurship, Employability, Skill development

#### Assessment & Evaluation

Components	Assignment	Mid Term Examination	Attendance	End Term Examination
<b>Weightage (%)</b>	<b>20</b>	<b>20</b>	<b>10</b>	<b>50</b>

#### **Mathematical methods for Economics-II**

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

## **Course Objectives**

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

## **Course outcome**

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

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

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

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

CO5 Demonstrate knowledge and understanding of the underlying mathematical principles.

CO6 Use mathematics for research and innovation.

## **Syllabus**

### **Unit-1 (Integration)**

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

### **Unit 2: (Differential Equation)**

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

### **Unit 3: Difference equation**

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

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

### **Unit 4: Linear Programming**

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

## **Suggested readings**

Assessment & Evaluation

Components	Assignment	Mid Term Examination	Attendance	End Term Examination
Weightage (%)	20	20	10	50

Programme and Course Mapping																	
CO	P O 1	P O 2	P O 3	P O 4	P O 5	P O 6	P O 7	P O 8	P O 9	PO 10	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6	
CO1	3			3	2				2	2		3	3			3	
CO2	3			3									3			2	
CO3	3			3													
CO4	3			3						2			3			2	
CO5	3			2									2		2		
CO6	3			3	2								3		2		
	1=lightly mapped			2= moderately mapped						3=strongly mapped							
Unit I	FUNCTIONS OF SEVERAL REAL VARIABLES																
Local																	
Regional																	
National																	
Global																	
Employability	Geometric representations of various functions, second order derivatives, homogenous and homothetic functions																
Entrepreneurship	Geometric representations of various functions, second order derivatives, homogenous and homothetic functions																
Skill Development	Geometric representations of various functions, second order derivatives, homogenous and homothetic functions																
Professional Ethics																	
Gender																	
Human Values																	
Environment & Sustainability																	
Unit II	MULTIVARIATE OPTIMIZATION																
Local																	

Regional	
National	
Global	
Employability	Calculus and its application, Lagrange characterisation, Envelop theorem, convex and concave functions
Entrepreneurship	Calculus and its application, Lagrange characterisation, Envelop theorem, convex and concave functions
Skill Development	Calculus and its application, Lagrange characterisation, Envelop theorem, convex and concave functions
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	
Unit III	LINEAR PROGRAMMING
Local	
Regional	
National	Linear Programming – Economic interpretations
Global	Linear Programming – Economic interpretations
Employability	Linear Programming- Graphs and matrix formulation
Entrepreneurship	Linear Programming- Graphs and matrix formulation
Skill Development	Linear Programming- Graphs and matrix formulation
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	
Unit IV	INTEGRATION, DIFFERENTIAL EQUATIONS AND DIFFERENCE EQUATIONS
Local	
Regional	
National	Integrals and economic applications
Global	Integrals and economic applications
Employability	Integrals and economic applications, first order difference and differential equations
Entrepreneurship	Integrals and economic applications , first order difference and differential equations

urship	
Skill Development	Integrals and economic applications, first order difference and differential equations
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	
SDG	4,9
NEP 2020	Professional Education, Technology use and integration, Vocational education, Lifelong learning
POE/4 <sup>th</sup> IR	Skill development, employability, Entrepreneurship, Technical skills

### **New Age Life Skills (AEC-II)**

Course Code	Course Title	L	T	P	S	Credit
	New Age Life skills - II	3				3
Pre-requisites/Exposure						

(L – Lecture      T – Tutorial      P – Practical      S – Studio      C – Credits)

#### **COURSE OBJECTIVES:**

- To cultivate and foster leadership skills and break barriers of communication.
- To enhance verbal ability competence and adaptability in learner.
- To enhance networking and relationship building skills in learner.
- To build need for self-awareness and personal development in learner.
- To inculcate different ways of preparing organizing and presenting their ideas

#### **Course Outcomes (COs)**

On completion of the course learner should be able to: -

- CO 1: Apply their communication skills in different professional and personal contexts, such as interviews, networking events, customer interactions, and interpersonal relationships.
- CO 2: Express ideas and information clearly and concisely through spoken language. They will develop the ability to articulate their thoughts, use appropriate vocabulary, and convey their message with clarity.



- CO 3: Develop skills related to career planning, job search strategies, and personal branding
- CO 4: Develop leadership skills and to motivate and inspire others, manage projects effectively, and demonstrate a proactive and responsible approach to their spoken language.

**Catalogue Description:**

The learners may be required to give presentation, engage in role plays, participate in group discussions, and complete written assessments to demonstrate their communication and skill development. Learner of such a course can expect to possess strong verbal and written communication skills, allowing them to express their thoughts and ideas clearly and concisely. The program fosters effective presentation skills, empowering graduates to deliver engaging and informative presentations. Learners will also acquire collaborative communication skills, facilitating teamwork and achieving shared goals.

**Course Topics:**

UNIT WISE DETAILS

Unit 1: **Presentation and Public Speaking**

Structuring and organizing a presentation, Developing effective visual aids, Managing stage fright and anxiety, Engaging the audience and delivering impactful speeches

Unit 2: **Assertiveness and Confidence Building**

Developing self-confidence and self-esteem, Assertiveness techniques: expressing opinions, setting boundaries, and saying “no” effectively, Handling criticism and feedback.

Unit 3: **Teamwork and Collaboration**

Effective collaboration and cooperation, Conflict resolution within a team, Building trust and fostering a positive team culture

Unit 4: **Well-being and Mindfulness**

Promoting physical and mental well-being, Stress management techniques, Introduction to mindfulness and meditation practices

**Text Book and References**

Bayer, Mike (2019), Best Self  
 Gladwell Malcom, (2021), Talking to strangers  
 Scot Susan (2004), Fierce conversations

**Mode of Evaluation:**

Components	Quiz 1	Attendance	Mid Term	Presentation/Assignment	End Term
Weightage (%)	10	10	20	10	50

**Program Mapping – PO to CO’s**

New Age Life skills – II

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	
CO 1																							2
CO 2				3																			
CO 3						3										3							3
CO 4																							

1=lightly mapped 2= moderately mapped 3=strongly mapped

### Third Semester

S.NO	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs
1		Economics of Growth & Development-I	Major DSC	4	3	1	0	4
2		Statistical Methods for Economics	Major (DSC)	4	3	1	0	4
3		Statistical Methods for Economics-Practical	Major DSC	1	0	0	1	2
4		Python for Data Science	Minor	4	2	0	4	6
5		VAC 3 from pool of University	VAC	2	2	0	0	2
6		1 from pool of University (Inter-Disciplinary)	OE	3	3	0	0	3
7		AEC 3	AEC	3	3	0	0	3
8		Evaluation of Summer Internship		2	-	-	-	
<b>Total Credit = 23</b>								<b>24</b>

### Economics of growth & development-I

	Economics of growth & development-I	L	T	P	C
<b>Version 1.0</b>		3	1	0	4
<b>Pre-requisites/Exposure</b>	--				
<b>Co-requisites</b>	--				

## **Course Objectives**

- To learn the several parameters of development of the nation.
- Familiarize with some central themes and issue of Economic Development.
- To understand the concept of Inequality and development, Major Growth Models etc,

## **Course outcome**

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

CO1. Explain development economic growth theories.

CO2. Apply economic prescriptions to development, concerns like education, health, sanitation and infrastructural development.

CO3. Explain inequalities between rich and poor countries, how the differences have evolved over time and how other measurements of quality of life correlates with per capita income.

CO4. Understand the models of economic growth.

CO5 Identify obstacles to economic development.

CO6 Understand the importance of economic decision making towards the objective of inclusive growth.

## **Syllabus**

### **Unit 1: Growth & Development**

Conceptual issues; Determinants of Economic Growth; Basic Requirements for Economic Growth. Traditional Measures of Economic Development -National income and per capita income, UNDP indices for measurement of Development (PQLI, HDI, Inequality adjusted HDI); concept of sustainable development.

### **Unit 2: Theories of Development**

Classical growth theory (Smith, Ricardo, Malthus and, Mill); Marxian model; Schumpeter's Theory; dependency theory of development;

### **Unit 3: Theories of Development for Underdeveloped Economy**

Lewis' Theory of Unlimited Supply of Labour, Ranis-Fie Model; Leibenstein's Critical Minimum Effort Thesis; Nelson's Low Level Equilibrium Trap; Harris Todaro Model of Migration

### **Unit 4: Population Growth, Economic Development and environment**

The Historical Changes in World Population, Demographic Transition, interrelation between population growth and economic development (from pessimism to optimism), Impact of population growth on Environment.

## **Suggested readings**

1. Banerjee, A., Benabou, R., Mookerjee, D. (eds.) (2006). *Understanding poverty*. Oxford University Press.
2. Bardhan, P. (2010). *Awakening giants, feet of clay: Assessing the economic rise of China and India*. Oxford University Press.
3. Basu, K. (2007). *The Oxford companion to economics in India*. Oxford University Press.
4. Dasgupta, P. (2007). *Economics: A very short introduction*. Oxford University Press.
5. Deaton, A. (2013). *The great escape: Health, wealth and the origins of inequality*. Princeton University Press.
6. Hirschman, A. (1992). *Rival views of market society and other essays*. Ch. 3: "Linkages in Economic Development". Harvard University Press.
7. Human Development Report. Relevant years.
8. Olson, M. (1996). Big bills left on the sidewalk: Why some nations are rich, and others poor. *Journal of Economic Perspectives*, 10, 3-24.
9. Thirlwall, A. P.,—Growth and Development, Seventh edition, Palgrave Macmillan, New York.
10. Ray, Debraj (2004), —Development Economics, Seventh impression, Oxford University Press, New Delhi.
11. Todaro, Michael P. and Stephen C Smith., —Economic Development, Pearson Education, (Singapore) Pvt. Ltd., Indian Branch, Delhi.
12. Meier, Gerald M. and James E. Rauch., "Leading Issues in Economic Development", Oxford University Press, New York.

**Modes of Evaluation: Quiz/Assignment/ Attendance extempore/ Written Examination**

**Examination Scheme:**

Components	Quiz I	Quiz II	Mid Term Exam	Attendance	End Term Exam
Weightage (%)	10	10	20	10	50

Programme and Course Mapping																
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6
CO 1	3	2	2	3	3			3	2		3	3	3	2	2	
CO 2	3	2	2	3	3		2	3	2		3	3	3	2	2	2
CO 3	3	2	2	3	3		2	3	2		3	3	3	2	2	2
CO 4	3	2	2	3	3			3	2		3	3	3	2	2	
CO 5	3	2		3	3		3	3	2		3			3	3	2
CO 6	3	3	3		3		3	2			3			3	2	
	1=lightly mapped					2= moderately mapped					3=strongly mapped					

Unit I	Growth and Development
Local	Sustainable development
Regional	Sustainable development
National	Determinants of economic growth, requirements for economic growth,

	UNDP indices for measurement of development
Global	Determinants of economic growth, requirements for economic growth, UNDP indices for measurement of development
Employability	Determinants of economic growth, requirements for economic growth, UNDP indices for measurement of development
Entrepreneurship	Determinants of economic growth, requirements for economic growth, UNDP indices for measurement of development
Skill Development	Determinants of economic growth, requirements for economic growth, UNDP indices for measurement of development
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	Sustainable development
<b>Unit II</b>	<b>Theories of development</b>
Local	Marxian model, dependency theory
Regional	Marxian Model, dependency theory
National	Classical growth theory (Smith, Ricardo, Malthus and, Mill); Marxian model; Schumpeter's Theory; dependency theory of development;
Global	Classical growth theory (Smith, Ricardo, Malthus and, Mill); Marxian model; Schumpeter's Theory; dependency theory of development;
Employability	Classical growth theory (Smith, Ricardo, Malthus and, Mill); Marxian model; Schumpeter's Theory; dependency theory of development;
Entrepreneurship	Classical growth theory (Smith, Ricardo, Malthus and, Mill); Marxian model; Schumpeter's Theory; dependency theory of development;
Skill Development	Classical growth theory (Smith, Ricardo, Malthus and, Mill); Marxian model; Schumpeter's Theory; dependency theory of development;
Professional Ethics	
Gender	
Human Values	Classical growth theory
Environment & Sustainability	Schumpeter's theory
<b>Unit III</b>	<b>Theories of development for underdeveloped economy</b>
Local	Lewis' Theory of Unlimited Supply of Labour
Regional	Lewis' Theory of Unlimited Supply of Labour
National	Lewis' Theory of Unlimited Supply of Labour, Nelson's Low Level Equilibrium Trap
Global	Lewis' Theory of Unlimited Supply of Labour, Nelson's Low Level Equilibrium Trap
Employability	Lewis' Theory of Unlimited Supply of Labour, Ranis-Fie Model; Leibenstein's Critical Minimum Effort Thesis; Nelson's Low Level Equilibrium Trap
Entrepreneurship	Lewis' Theory of Unlimited Supply of Labour, Ranis-Fie Model; Leibenstein's Critical Minimum Effort Thesis; Nelson's Low Level Equilibrium Trap
Skill	Lewis' Theory of Unlimited Supply of Labour, Ranis-Fie Model;

Development	Leibenstein's Critical Minimum Effort Thesis; Nelson's Low Level Equilibrium Trap
Professional Ethics	
Gender	
Human Values	Harris Todaro Model of Migration
Environment & Sustainability	
<b>Unit IV</b>	<b>Population Growth, Economic Development and environment</b>
Local	
Regional	
National	World Population, Demographic Transition, interrelation between population growth and economic development
Global	World Population, Demographic Transition, interrelation between population growth and economic development
Employability	World Population, Demographic Transition, interrelation between population growth and economic development
Entrepreneurship	World Population, Demographic Transition, interrelation between population growth and economic development
Skill Development	World Population, Demographic Transition, interrelation between population growth and economic development
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	
SDG	SDG4, SDG12, SDG8,SDG9
NEP 2020	Integrated learning, Holistic learning, lifelong learning, Inclusive education
POE/4 <sup>th</sup> IR	Entrepreneurship, Employability, Skill development

### Statistical methods for Economics

	Statistical Methods for Economics	L	T	P	C
<b>Version 1.0</b>		3	1	0	4
<b>Pre-requisites/Exposure</b>	--				
<b>Co-requisites</b>	--				

### Course Objectives

- The course teaches students the basics of probability theory and statistical inference.
- It sets a necessary foundation for the econometrics courses within the Honours programme.
- The familiarity with probability theory will also be valuable for courses in advanced microeconomic theory.

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## **Course outcome**

- CO1: Students will gain a solid understanding of fundamental statistical concepts such as probability, hypothesis testing, sampling, and estimation.
- CO2: Students will learn how to collect, organize, and analyze economic data using appropriate statistical techniques. They will also be able to interpret the results and draw meaningful conclusions.
- CO3: To facilitate an understanding of the main branches of basic statistical inference, and to develop the ability to use statistical techniques to analyze data and assess the accuracy of the resulting estimates and conclusions.
- CO4: To provide essential knowledge on the concept of random sample from a distribution, sampling distribution of a statistic, standard error, Statistical Tests.
- CO5: Students will become proficient in applying a range of statistical methods commonly used in economics, including regression analysis, time series analysis, and panel data analysis.
- CO6: Students will develop the ability to critically evaluate economic research studies that employ statistical methods.

## **Syllabus**

### **Unit 1: Central Tendency & Dispersion**

Collection, Classification and Presentation of statistical data, Measures of Central Tendency: A.M., G.M., H.M., Median, Quartiles, Deciles, Percentiles, Mode, Measures of Dispersion, Skewness and Kurtosis, Lorenz Curve, Coefficient of Variation

### **Unit 2: Time Series & Index Number:**

Index numbers: Problems and methods of construction of various types of indices, Laspeyres, Pasche's and Fisher's ideal index numbers, Time reversal, factor reversal and circular tests; chain base indices, base shifting splicing and deflating the index number, costs of living index numbers and consumer price index numbers. Time series: components of time series and their decomposition, Methods of measuring trend, cyclical, seasonal and irregular variation.

### **Unit 3: Correlation and Regression:**

Correlation: Simple; Coefficient of correlation; Karl Pearson and Rank correlation; Partial and Multiple Correlation analysis; Regression analysis – Estimation of a regression line in a bivariate distribution, Least squares method; Interpretation of Correlation and regression coefficients; Coefficient of determination.

### **Unit 4: Probability & Sampling Techniques**

Probability and Distribution: Probability: Concepts, Rules of probability (Addition and Multiplication); Random Variables; Mathematical expectation; Theoretical distribution – Binomial, Poisson and Normal; their properties, uses and application. Sampling and Testing of Hypotheses: Random Sample;

concept of sampling distribution; Concepts of testing of hypothesis and test of significance tests of significance of proportion, mean, variance and regression coefficients (based on z, t, and F distributions only).

**Suggested readings**

**References**

- Devore, J. (2012). Probability and statistics for engineers, 8th ed. Cengage Learning.
- Larsen, R., Marx, M. (2011). An introduction to mathematical statistics and its applications. Prentice Hall.
- Miller, I., Miller, M. (2017). J. Freund’s mathematical statistics with applications, 8th ed. Pearson.
- Business statistics By S.N. Arora S. Chand Publication
- Business Statistics for Contemporary Decision Making, by Ken Black, John Wiley & Sons (Asia) Pte. Ltd., Singapore.
- Statistics for Management- by Richard Levin & David S. Rubin, Pearson Education.
- Statistics for management – by Gerald Keller, Cengage Learning.
- Complete Business Statistics Amir D Aczel & Jayavel Sounderpandyan.
- Introductory Statistics by Weiss. Seventh edition, Pearson education.
- Business Statistics – by J. K Sharma, Pearson education.
- Statistics for Management - by T N Srivastava and Shailaja Rego, The McGraw-Hill companies.

Programme and Course Mapping																	
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6	
CO 1	3			3	3			2	3	2			3			3	
CO 2	3			3	3			2	3	2			3			3	
CO 3	3			3	3			2	3	2			3			3	
CO 4	3			3	3			2	3	2			3			3	
CO 5	3			3	3			2	3	2			3			3	
CO 6	3			3	3			3	3	3			3	2		3	
	1=lightly mapped					2= moderately mapped					3=strongly mapped						



<b>Unit I</b>	<b>Central Tendency &amp; Dispersion</b>
Local	
Regional	
National	
Global	
Employability	Measures of Central Tendency, Measures of Dispersion, Probability & its Application
Entrepreneurship	Measures of Central Tendency, Measures of Dispersion, Probability & its Application
Skill Development	Measures of Central Tendency, Measures of Dispersion, Probability & its Application
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	
<b>Unit II</b>	<b>Time Series &amp; Index Number</b>
Local	Types & Construction of Indices,, Time series analysis
Regional	Types & Construction of Indices,, Time series analysis
National	Types & Construction of Indices,, Time series analysis
Global	Types & Construction of Indices,, Time series analysis
Employability	Types & Construction of Indices,, Time series analysis
Entrepreneurship	Types & Construction of Indices,, Time series analysis
Skill Development	Types & Construction of Indices,, Time series analysis
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	
<b>Unit III</b>	<b>Correlation and Regression</b>
Local	
Regional	
National	Covariance, Measures of Correlation, Regression Analysis
Global	Covariance, Measures of Correlation, Regression Analysis
Employability	Covariance, Measures of Correlation, Regression Analysis
Entrepreneurship	Covariance, Measures of Correlation, Regression Analysis
Skill Development	Covariance, Measures of Correlation, Regression Analysis
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	
<b>Unit IV</b>	<b>Probability &amp; Sampling Techniques</b>

## Statistical methods for Economics (practical)

	Statistical Methods for Economics (Practical)	L	T	P	C
<b>Version 1.0</b>		0	0	2	1
<b>Pre-requisites/Exposure</b>	--				
<b>Co-requisites</b>	--				

### **Course Objectives**

The main objective of the course is to get a clear understanding of the practical portion in economics that includes hands on experience in excel, correlation and regression.

### **Course outcome**

An important learning outcome of the course will be the ability to create charts, graphical representation of data and statistical analysis.

### **Syllabus**

#### **UNIT I: Charting in MS-Excel:**

Creating Charts, Graphical representation of data, Representation of Economic relationships: Demand curve, Supply curve, Cost curves, Revenue curves, Consumption function, Savings function and Production function.

#### **UNIT II: Advanced Excel:**

Functions in Excel, Sorting and filtering of data, Creating Sub- totals, Using a data form, Creating Pivot tables, Using and creating MS-Excel templates, Linking workbooks.

#### **UNIT III: Data analysis:**

Preparation of frequency distribution, calculation of Mean, Standard deviation, Coefficient of variation, Correlation coefficient, Regression coefficients, Trend line using method of least squares and Moving averages.

#### **UNIT IV: MS-Access:**

Planning and creating tables, Creating and using forms, working with external data, creating relational database, enhancing form design, Creating Queries, Producing reports

### **Suggested readings**

References:

1. MS Office 2007
2. Access 2007 Inside Out-John L. Viescas, Jeff Conrad (PHI)
3. Microsoft Office Access 2007 –Introductory –Linda O’Leary (TMH)
4. Microsoft Office Access 2007QuickSteps-John Cronan (TMH)

**New Age Life Skills-III**

Course Code	Course Title	L	T	P	S	Credit
	New Age Life skills -III	3				3
Pre-requisites/Exposure						

(L – Lecture      T – Tutorial      P – Practical      S – Studio      C – Credits)

**COURSE OBJECTIVES:**

- To develop goal-setting and planning Skills to achieve academic and personal objective
- To improve research and information literacy skills to gather and evaluate credible sources
- To develop networking skills to build connection with mentors and professionals in chosen field.
- To develop leadership qualities to take initiative inspire others and contribute positively.
- To have a standard resume and social media profile to navigate resources platforms and tools effectively.

**Course Outcomes (COs)**

On completion of the course learner should be able to: -

- COS1 Seek opportunities to exploit and further develop their knowledge.
- CO2 Exercise professional knowledge and encourage in development of speaking skills.
- CO3 Develop different value systems and moral dimensions in taking decisions.
- CO4 Collaborate and lead colleagues, using a range of practical, facilitative, communication and networking skills to influence practice and policy in diverse environments.
- CO5 Exhibit competence in utilization and application

**Catalogue Description:**

This course aims to equip individuals with the essential abilities to effectively communicate in various professional contexts. Ethical communication practices, critical thinking, adaptability, professionalism, and a commitment to self-reflection and growth are other outcomes of the program. Overall, a Communication Skills program empowers individuals with the skills necessary for success in various professional environments.

**UNIT WISE DETAILS**

**Unit 1: Financial Literacy**

Understanding Money Budgeting and Saving, Investing and Wealth Management Retirement Plan

**Unit 2: Emotional Intelligence**

Understanding and managing emotions, Empathy and social awareness, Building and maintaining positive relationships, Conflict resolution and negotiation skills

**Unit 3: Introduction to Time Management**

Understanding the importance of time management, Exploring common time management

challenges, Benefits of effective time management

**Unit 4: Digital Literacy and Online Etiquette**

Navigating the digital world safely and responsibly, understanding online privacy and security, Developing good online etiquette and building a positive digital presence, CV/ Resume, GDPI, Online Profile Building

**Text Book and References:**

- O’Hanlon, bill, (2012) The change your life book
- Gladwell Malcom, (2021), Talking to strangers
- Scot Susan (2004), Fierce conversations

**Mode of Evaluation:**

Components	Quiz 1	Attendance	Mid Term	Presentation/Assignment	End Term
Weightage (%)	10	10	20	10	50

**Program Mapping – PO to CO’s**

New Age Life skills – III

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	
CO 1																3							
CO 2																							2
CO 3						3																	
CO 4			3																				3
CO 5																							

1=lightly mapped 2= moderately mapped 3=strongly mapped

**Fourth Semester**

S.No	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs
1		Economics of Growth & Development-II	Major DSC	4	3	1	0	4
2		Basic Econometrics	Major DSC	4	3	1	0	4
3		Econometrics Laboratory	Major DSC	1	0	0	1	1
4		DSE 1	Major (DSE)	4	3	1	0	4
5		Data Processing & Visualization using Python	Minor	4	2	0	4	6
6		1 from pool of University (Inter-Disciplinary)	OE	3	3	0	0	3
7		VAC 4 from pool of University	VAC	2	2	0	0	2

8		SEC 2	SEC	2	1	0	2	3
Total = 24								<b>27</b>
<b>Undergraduate Diploma in Economics (Total Credit = 93)</b>								
Summer Internship = 2 Credit								

### **Economics of Growth & Development-II**

Course Code	Course Title	L	T	P	S	Credit
	Economics of Growth & Development-II	3	1			4
Pre-requisites/Exposure						

#### **Course Objectives**

- To reflect upon the role of institutions - government and markets in the aspect of development.
- To highlight upon capital formation and technology.
- To examine various approaches for economic development.
- To study about the concept of trade and development.

#### **Course outcome**

This course introduces students to the basics of development economics, with in depth discussions of the concepts of development, growth, poverty, capital accumulation and capital formation, as well as the underlying political institutions.

CO1: Understand the current literature on the empirical economics of development.

CO2: Examine the aspects that have been at the core of development policy over time and how they relate to dominant development ideas today.

CO3: Understand and Examine the process of economic planning in India.

CO4: Describe choice of techniques and different growth models and their relevance.

CO5: To explain contemporary issues pertaining to the industrialization in the developing economies.

CO6 : To identify the bottlenecks in the balanced economic development.

#### **Syllabus**

## Unit 1: Sectoral Aspects of Development

Importance of agriculture and industry in economic development. Role of institutions - government and markets. Poverty - indicators and measurement, poverty alleviation programmes of govt.; Multidimensional Poverty Index.

## Unit 2: Technology and Capital Formation

- (a) **Choice of Techniques and appropriate Technology:** Capital intensive versus Labor intensive techniques, Elementary Idea of Cost-Benefit Analysis, Technical Progress.
- (b) **Capital formation:** Meaning and sources; capital output ratio; Human capital Formation: concept and utilization. Foreign aid and Economic Development.

## Unit 3: Approaches to Economic Development

Vicious circle of poverty, Myrdal's-Backwash Effects and circular causation, balanced growth, unbalanced growth, Rostow's stages of Economic Growth, Marx stages of Economic Growth, Endogenous growth models.

## Unit 4: Trade and Development

Trade as an engine of growth, two gap analysis, Prebisch, Singer and Murdal views, gains from trade and LDCs; Role of foreign Direct investment (FDI) and Multinational corporations (MNCs) in the emerging scenario, Latest Foreign Trade Policy.

### Suggested readings

1. Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge University Press.
2. Piketty, T., Saez, E. (2014). Inequality in the long run, *Science*, 344.
3. Ray, D. (1998). *Development economics*. Princeton University Press.
4. Rodrik, D. (2009). *One economics, many recipes: Globalization, institutions and economic growth*. Ch. 1: "Fifty Years of Growth (and lack thereof): An Interpretation". Princeton University Press.
5. Sen, A. (2000). *Development as freedom*. Oxford University Press.
6. Shleifer, A., Vishny, R. (1993). Corruption. *Quarterly Journal of Economics*, 108, 599-617.
7. Todaro, M., Smith, S. (2015). *Economic Development*. Pearson.

**Modes of Evaluation: Quiz/Assignment/ Attendance extempore/ Written Examination Examination Scheme:**

Components	Quiz I	Quiz II	Mid Term Exam	Attendance	End Term Exam
Weightage (%)	10	10	20	10	50

Programme and Course Mapping																	
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6	
CO 1	3	2	2	3	3			3	2		3	3	3	2	2		
CO 2	3	2	2	3	3		2	3	2		3	3	3	2	2	2	
CO 3	3	2	2	3	3		2	3	2		3	3	3	2	2	2	
CO 4	3	2	2	3	3			3	2		3	3	3	2	2		
CO 5	3	2		3	3		3	3	2		3			3	3	2	
CO 6	3	3	3		3		3	2			3			3	2		
	1=lightly mapped					2= moderately mapped					3=strongly mapped						

<b>Unit I</b>	<b>Sectoral Aspects of Development</b>
Local	Industry and Agriculture sector
Regional	Poverty Indices, MDPI, Industry and Agriculture sector
National	Industry and Agriculture sector, Poverty Indices, MDPI
Global	Industry and Agriculture sector, Poverty Indices, MDPI
Employability	Industry and Agriculture sector
Entrepreneurship	Industry and Agriculture sector
Skill Development	Industry and Agriculture sector, Poverty Indices, MDPI
Professional Ethics	Industry and Agriculture sector
Gender	
Human Values	Poverty Indices, MDPI
Environment & Sustainability	Industry and Agriculture sector, Poverty Indices, MDPI
<b>Unit II</b>	<b>Technology and Capital Formation</b>
Local	Capital output ratio; Human capital Formation
Regional	Capital output ratio; Human capital Formation
National	Choice of Techniques and appropriate Technology, Capital output ratio; Human capital Formation
Global	Choice of Techniques and appropriate Technology, Capital output ratio; Human capital Formation
Employability	Choice of Techniques and appropriate Technology, Capital output ratio; Human capital Formation

Entrepreneurship	Choice of Techniques and appropriate Technology, Capital output ratio; Human capital Formation
Skill Development	Capital output ratio; Human capital Formation, Capital output ratio; Human capital Formation
Professional Ethics	
Gender	
Human Values	Capital output ratio; Human capital Formation
Environment & Sustainability	Capital output ratio; Human capital Formation
<b>Unit III</b>	<b>Approaches to Economic Development</b>
Local	balanced growth, unbalanced growth, Rostow's stages of Economic Growth, Marx stages of Economic Growth, Endogenous growth models.
Regional	balanced growth, unbalanced growth, Rostow's stages of Economic Growth, Marx stages of Economic Growth, Endogenous growth models.
National	balanced growth, unbalanced growth, Rostow's stages of Economic Growth, Marx stages of Economic Growth, Endogenous growth models.
Global	balanced growth, unbalanced growth, Rostow's stages of Economic Growth, Marx stages of Economic Growth, Endogenous growth models.
Employability	Myrdal's-Backwash Effects and circular causation
Entrepreneurship	Myrdal's-Backwash Effects and circular causation
Skill Development	Myrdal's-Backwash Effects and circular causation
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	Myrdal's-Backwash Effects and circular causation, balanced growth, unbalanced growth
<b>Unit IV</b>	<b>Trade and Development</b>
Local	LDCs
Regional	LDCs
National	Prebisch, Singer and Myrdal views, gains from trade and LDCs; Role of foreign Direct investment (FDI) and Multinational corporations (MNCs)
Global	Prebisch, Singer and Myrdal views, gains from trade and LDCs; Role of foreign Direct investment (FDI) and Multinational corporations (MNCs)
Employability	Prebisch, Singer and Myrdal views, LDCs, FDI
Entrepreneurship	Prebisch, Singer and Myrdal views,LDCs,FDI
Skill Development	Prebisch, Singer and Myrdal views,LDCs,FDI
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	LDCs,FDI
<b>SDG</b>	<b>SDG4, SDG12, SDG8,SDG9</b>



NEP 2020	Integrated learning, Holistic learning, lifelong learning, Inclusive education
POE/4 <sup>th</sup> IR	Entrepreneurship, Employability, Skill development

### Basic Econometrics

Course Code	Course Title	L	T	P	S	Credit
	Basic Econometrics	3	1			4
Pre-requisites/Exposure						

#### Course Objectives

- To impart a basic understanding of econometrics.
- To understand the formulation of hypothesis.
- To examine the measures of goodness of fit.
- To study about central limit theorem.

#### Course outcome

After the completion of the course students will be able to

CO1: Understand OLS estimators.

CO2. Apply OLS to specific models.

CO3. Estimate and test regression models for censored data.

CO4. Explain multicollinearity, heteroscedasticity, and serial correlation.

CO5 Estimate and interpret linear regression models and be able to distinguish between economic and statistical importance.

CO6 Use econometric methods for forecasting.

#### **UNIT-I: Basics of Econometrics**

Introduction: Definition, Scope, and Methodology of econometrics; Nature and sources of data for econometric analysis; Specification of an econometric model.

Simple Regression Models: Estimators (OLS) and their properties; Statistical inference; Tests of significance and tests of restrictions.

#### **UNIT-II: Econometric Problems**

Econometric Problems: Nature, consequences, detection and remedial measures of the problems of multicollinearity, heteroscedasticity and autocorrelation.

#### **UNIT-III: Model Selection & Test Procedures**

Test Procedures and Model Selection: Tests of specification and mis-specification, measurement errors, encompassing models, and criteria for model selection.

**UNIT-IV: Dynamic Models of Econometrics & SEM**

Dynamic Models: Lags in econometrics, Distributed and autoregressive lags, Koyck model, Simultaneous Equation Models: Introduction, Identification problem, Simultaneous equation bias and ILS and 2SLS methods of estimation.

**Suggested readings**

- Gujarati, D. (2002). *Basic Econometrics* (4th ed.). McGraw Hill.
- Stock, J.H. & Watson, M. W. (2011). *Introduction to Econometrics* (3rd ed.). Delhi: Pearson Prentice Pvt. Ltd.
- Maddala, G. S. (2007). *Introduction to Econometrics* (3rd ed.). India: Wiley.
- Wooldridge, J. M. (2000). *Introductory Econometrics*. South Western College Publishing.

<b>Programme and Course Mapping</b>																	
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6	
CO 1	3			3	3			2	3	2			3			3	
CO 2	3			3	3			2	3	2			3			3	
CO 3	3			3	3			2	3	2			3			3	
CO 4	3			3	3			2	3	2			3			3	
CO 5	3			3	3			2	3	2			3			3	
CO 6	3			3	3			3	3	3			3	2		3	
	<b>1=lightly mapped</b>			<b>2= moderately mapped</b>						<b>3=strongly mapped</b>							

Unit I	Basics of Econometrics
Local	
Regional	
National	
Global	
Employability	econometrics; Nature and sources of data for econometric analysis; Specification of an econometric model, Simple Regression Models:
Entrepreneurship	
Skill Development	econometrics; Nature and sources of data for econometric analysis; Specification of an econometric model, Simple Regression Models:
Professional Ethics	
Gender	

Human Values	
Environment & Sustainability	
<b>Unit II</b>	<b>Econometric Problems</b>
Local	
Regional	
National	
Global	
Employability	Econometric Problems: Nature, consequences, detection and remedial measures of the problems of multicollinearity, hetroscedasticity and autocorrelation.
Entrepreneurship	Econometric Problems: Nature, consequences, detection and remedial measures of the problems of multicollinearity, hetroscedasticity and autocorrelation.
Skill Development	Econometric Problems: Nature, consequences, detection and remedial measures of the problems of multicollinearity, hetroscedasticity and autocorrelation.
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	
<b>Unit III</b>	<b>Model Selection &amp; Test Procedures</b>
Local	
Regional	
National	
Global	
Employability	Test Procedures and Model Selection of Econometrics
Entrepreneurship	Test Procedures and Model Selection of Econometrics
Skill Development	Test Procedures and Model Selection of Econometrics
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	
<b>Unit IV</b>	<b>Dynamic Models &amp; SEMs</b>
Local	
Regional	
National	
Global	
Employability	Dynamic Models: Lags in econometrics, Distributed and autoregressive lags, Koyck model, Simultaneous Equation Models
Entrepreneurship	Dynamic Models: Lags in econometrics, Distributed and autoregressive lags, Koyck model, Simultaneous Equation Models

Skill Development	Dynamic Models: Lags in econometrics, Distributed and autoregressive lags, Koyck model, Simultaneous Equation Models
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	
SDG	8,12
NEP 2020	Professional Education , Technology use and integration, Vocational education, Lifelong learning
POE/4th IR	Skill development, employability, Entrepreneurship, Technical skills

### Econometrics lab

Course Code	Course Title	L	T	P	S	Credit
	Econometrics Lab	0	0	2		1
Pre-requisites/Exposure						

#### **Econometrics Lab Practical**

2 Hours credit Week

#### **Unit 1**

Introduction to Eviews: Overview and Use

Using OLS in Eviews: Statistical inference

Out of Sample Prediction: Test of Restriction

The classical Model

Hypothesis Testing

Specification: Choosing the Independent Variables

Out of sample prediction

#### **Unit 2**

Introduction to Stata

Importing/transforming Data

Graphic and Visualization

ANOVA and Coefficient table

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P value and F significant

Pearson coefficient and VIF

Pearson coefficient and VIF

### **Unit 3**

Introduction to R

Distributed lag models

ARDL Bounds testing

ARDL Bound testing

Distributed lag model part II

Distributed lag model part II

Koyck Model

Koyck Model continued

### **Unit 4**

Simultaneous equation model

Simultaneous equation model continued

Identification Problem

Identification Problem continued

ILS method of estimation

ILS method of estimation

2SLS methods of estimation

2SLS methods of estimation

Reference text

1. Johnston J., *Econometrica*, 3a ristampa 2010, 5a edizione 2001, Franco Angeli, Milano
2. Cappuccio N. e R. Orsi, *Econometria*, Il Mulino, 2005
3. Marcellino M., *Econometria Applicata*, Egea, Milano 2006

## **Financial Markets & Institution (DSE)**

Course Code	Course Title	L	T	P	S	Credit
	<b>Financial Markets &amp; Institution</b>	3	1			4
Pre-requisites/Exposure						

### **Course Objectives**

This course provides a strong theoretical foundation and an economic framework to understand the world of modern finance. Major topics in the course include: time value of money; fixed-income securities; bond pricing and the term structure of interest rates; portfolio theory and pricing models such as the capital asset pricing model; hedging, speculation, and arbitrage; futures and options contracts; determination of forward and futures prices; trading strategies involving options; binomial trees; and the Black-Scholes-Merton option pricing model

### **Course outcome**

Students will acquire extensive theoretical knowledge in portfolio risk management, capital asset pricing, and the operation of financial derivatives. The course familiarizes students with the terms and concepts related to financial markets and will help them comprehend business news/articles better. The course also helps to enhance a student's understanding of real life investment decisions. The course has a strong employability quotient given the relatively high demand for skilled experts in the financial sector.

CO1. Understand the general concepts of financial markets.

CO2. Analyse difference between primary and secondary markets and learn about markets for different products.

CO3. Understand Indicators and their influence on the markets.

CO4. Demonstrate the ability to make own investment decisions in the stock market.

CO5 Understand functioning of stock exchange.

CO6 Identify market risks and financial stocks

### **Syllabus**

#### **Unit 1: Financial System**

Concept and functions of Financial System; Role of Financial Market and Institutions. Financial system and economic development, Equilibrium in Financial Markets, Assessment and management of risk and return in financial institutions. Interest Rate Analysis and yield curve.

#### **Unit 2: Banking System**

Banking System: Meaning and Functions of Banking; Types of Banks; Commercial Banks, Banking law and regulation, Functions of RBI Credit and Monetary Planning. Capital Adequacy and NPAs, Developmental Banks.

### Unit 3: Money & Capital Market

Money Market: Introduction, Meaning Definitions, Characteristics and Functions of Money market; instruments of money market; Recent Developments in Indian Money Market. Capital Market: Introduction, Meaning, Objectives, Importance and Functions of Capital Market; Financial instruments and market functionaries in primary capital Market. Characteristics and Functions of Stock Exchange; Concepts and Types of Derivatives; Futures and Options.

### Unit 4: Financial Institution Regulation

SEBI: its impact on the working of capital market in India; IRDA and its role in financial markets - Theory of optimum currency areas - Euro-dollar and Euro-Currency markets – Their development role at international level.

#### Suggested readings

1. Brealey, R., Myers, S., Allen, F., Mohanty, P. (2013). *Principles of corporate finance, 10th ed.* Tata McGraw-Hill.
2. Hull, J., Basu, B. (2017). *Options, futures, and other derivatives, 9th ed.* Pearson Education.
3. Luenberger, D. (2013). *Investment science.* Oxford University Press.

**Modes of Evaluation: Quiz/Assignment/ Attendance extempore/ Written Examination Examination Scheme:**

Components	Quiz I	Quiz II	Mid Term Exam	Attendance	End Term Exam
Weightage (%)	10	10	20	10	50

Programme and Course Mapping																
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6
CO 2	3			3	3				2					3	3	3
CO 3	3			3	3				3						3	3
CO 4	3			3	3	3			3	2					3	3
CO 5	3			3	3				2		2	2	2	3	3	3
CO 6	3			3	3	3			3	2					3	3

	1=lightly mapped	2= moderately mapped	3=strongly mapped
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<b>Unit I</b>	<b>Financial System</b>
Local	
Regional	
National	Role of Financial Market and Institutions. Financial system and economic development
Global	
Employability	Assessment and management of risk and return in financial institutions
Entrepreneurship	Assessment and management of risk and return in financial institutions. Interest Rate Analysis and yield curve
Skill Development	Assessment and management of risk and return in financial institutions. Interest Rate Analysis and yield curve
Professional Ethics	Assessment and management of risk and return in financial institutions
Gender	
Human Values	
Environment & Sustainability	
<b>Unit II</b>	<b>Banking System</b>
Local	<b>Banking System, Monetary Planning. Capital Adequacy and NPAs.</b>
Regional	<b>Banking System, Monetary Planning. Capital Adequacy and NPAs.</b>
National	<b>Banking System, Monetary Planning. Capital Adequacy and NPAs.</b>
Global	<b>Banking System, Monetary Planning. Capital Adequacy and NPAs.</b>
Employability	<b>Banking System, Monetary Planning. Capital Adequacy and NPAs.</b>
Entrepreneurship	<b>Banking System, Monetary Planning. Capital Adequacy and NPAs.</b>
Skill Development	<b>Banking System</b>
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	
<b>Unit III</b>	<b>Money Market</b>
Local	
Regional	<b>Money Market- Classification, Instruments, Recent Developments in Indian Money Market.</b>
National	<b>Money Market- Classification, Instruments, Recent Developments in Indian Money Market.</b>
Global	<b>Money Market- Classification, Instruments, Recent Developments in Indian Money Market.</b>
Employability	<b>Money Market- Classification, Instruments, Recent Developments in Indian Money Market.</b>
Entrepreneurship	<b>Money Market- Classification, Instruments, Recent Developments in Indian Money Market.</b>
Skill Development	<b>Money Market- Classification, Instruments, Recent Developments in Indian Money Market.</b>



Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	
Unit IV	<b>Capital Market</b>
Local	
Regional	
National	<b>Capital Market:</b> Introduction, Meaning, Objectives, Importance and Functions of Capital Market; Financial instruments and market functionaries in primary capital Market.
Global	
Employability	<b>Capital Market:</b> Introduction, Meaning, Objectives, Importance and Functions of Capital Market; Financial instruments and market functionaries in primary capital Market. Stock Exchange, Derivative Market
Entrepreneurship	<b>Capital Market:</b> Introduction, Meaning, Objectives, Importance and Functions of Capital Market; Financial instruments and market functionaries in primary capital Market. Stock Exchange, Derivative Market
Skill Development	<b>Capital Market:</b> Introduction, Meaning, Objectives, Importance and Functions of Capital Market; Financial instruments and market functionaries in primary capital Market. Stock Exchange, Derivative Market
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	
SDG	8,12,9
NEP 2020	
POE/4 <sup>th</sup> IR	

### **Political Economy (DSE)**

Course Code	Course Title	L	T	P	S	Credit
	<b>Political Economy</b>	3	1			4
Pre-requisites/Exposure						

#### **Course Objectives**

This course explores the systemic structures and institutions of capitalist economies and their evolution in a political economic framework. Students will be exposed to alternative schools of thought and are expected to read some classic texts and commentaries as well as more contemporary essays on the subject.

## **Course outcome**

This course prepares the students to develop critical thinking by exposing them to elements of economic thought, juxtaposing ideas and theoretical structures based largely on original texts and journal articles. Students will learn to assimilate from a diverse range of opinions and crystallize their own thought processes and standpoints. This will also help them to develop advanced writing, presentation and research skills. It further enables them to comprehend a larger view of the world around us by analyzing the existing social and political structures and their links with the economic processes. It is thus a crucial course, which will expose the social science dimension of economics to the students and also provides them skills to think and analyze in an interdisciplinary manner.

## **Syllabus**

### **Unit 1: Historical Perspective of Capitalism**

Analysing Social Change in Historical Perspective The method of historical materialism; the transition from feudalism to capitalism; capitalism as a historical process – alternative perspectives; Capitalist development in the pre-Second World War period, the ‘Golden Age’ and later

### **Unit 2: Capitalism & State**

Capitalism as an Evolving Economic System Basic features; accumulation and crisis; monopoly capitalism— alternative perspectives; role of State in Capitalism; The state and the economy – contestation and mutual interdependence; the state as an arena of conflict;

### **Unit 3: Social Dimension of Political Economy**

The Social Dimension: Globalization and Uneven Development – Growth, inequality and crisis in an uneven geographical spread and its social ramifications

### **Unit 4: Political Economy & Environment**

Broader Perspectives (Gender and Environment): Dimensions of Gender in work, accumulation and globalization; Political economic issues in environment, sustainability and inequality.

## **Suggested readings**

1. Lange, O. (1963). *Political economy, Vol. 1*. Chapters 1 and 2. Macmillan.
2. Patnaik, P. (2006). Lenin’s theory of imperialism today. In K. S. Jomo (ed.): *The long twentieth century: The great divergence: Hegemony, uneven development and global inequality*. Oxford University Press.
3. Schumpeter, J. (1976). *Capitalism, socialism and democracy*. Chapters 6, 7 and 8. George Allen and Unwin.
4. Shaikh, A. (2000). Economic crises. In T. Bottomore, et al. (eds.): *The dictionary of Marxist thought*. Maya Blackwell.

5. Shaikh, A. (2000). Falling rate of profit. In T. Bottomore et al. (eds.): *The dictionary of Marxist thought*. Maya Blackwell.
6. Sweezy, P. (1942). *The theory of capitalist development*. Monthly Review Press.
7. Vakulabharanam, V. (2009). The recent crisis in global capitalism: Towards a Marxian understanding. *Economic and Political Weekly*, 44, 144-150.

**Modes of Evaluation: Quiz/Assignment/ Attendance extempore/ Written Examination Examination Scheme:**

Components	Quiz I	Quiz II	Mid Term Exam	Attendance	End Term Exam
Weightage (%)	10	10	20	10	50

Programme and Course Mapping																
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6
CO 2	3			3	3				2					3	3	3
CO 3	3			3	3				3						3	3
CO 4	3			3	3	3			3	2					3	3
CO 5	3			3	3				2		2	2	2	3	3	3
CO 6	3			3	3	3			3	2					3	3
	1=lightly mapped			2= moderately mapped				3=strongly mapped								

**Economics of Education (DSE)**

Course Code	Course Title	L	T	P	S	Credit
	<b>Economics of Education</b>	3	1			4
Pre-requisites/Exposure						

- CO1- To develop an understanding of Conceptual Issues in Economics of Education
- CO2- To develop an understanding of Cost-Benefit Analysis, Pricing and Financing of Education
- CO3-To develop an understanding of Allocation of funds to Education in the 5-year Plans
- CO4- To develop an understanding of the Human Resource Development
- CO5-To develop an understanding of Education, Economic Development and Growth
- CO6-To develop an understanding of Productivity, Wastage Equity and Income Distribution in Education

### Unit 1: **Economics of Education**

Demand for Education and its determinants, Investment in human capital, Rate of return to education, Private and Social quality of Education

### Unit 2: **Educational Inequality**

Role of private and social sector in Education; quality of education; signalling of human capital; theories of discrimination; gender and caste discrimination in India.

### Unit 3: **Educational Reforms & Regulation**

Education sector in India: an overview, Educational Reform in India (Education Policy 1986, NEP 2020), Role of NCERT, UGC, AICTE, MOE, NCTE etc.

### Unit 4: **Education & SDG**

SDG 4 Quality Education: ensure inclusive and equitable quality education and promote lifelong learning opportunities for all; Review and analysis of various targets of SDG 4.

### **Suggested readings**

- "Economics of Education" by George S. Psacharopoulos and Harry Anthony Patrinos
- **"The Economics of Education: A Comprehensive Overview" by Steve Bradley, Colin Green, and John Mangan**
- "Handbook of the Economics of Education" edited by Eric A. Hanushek, Stephen Machin, and Ludger Woessmann

<b>Programme and Course Mapping</b>																
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6
CO 2	3			3	3				2					3	3	3
CO	3			3	3				3						3	3

3																
CO 4	3			3	3	3			3	2	3				3	3
CO 5	3			3	3				2		2	2	2	3	3	3
CO 6	3			3	3	3			3	2					3	3
	1=lightly mapped			2= moderately mapped				3=strongly mapped								

### Digital Marketing (SEC-II)

Course Code	Course Title	L	T	P	S	Credit
	<b>Digital marketing</b>	0	0	2		2
Pre-requisites/Exposure						

**Course Objective:** This course has been designed to impart knowledge of online marketing and working on various tools. Through this program, we aim to provide tools which have a high demand in the current business environment. The course curriculum of the University needs to be supplemented by a short duration course to impart knowledge and skills required to understand digital marketing concepts. This program is the need of the hour. Once there was a time when advertisements were limited to television, radio, newspapers and magazines. However, as the world is moving towards online platforms, businesses are expanding their reach and trying to connect with the customers through digital marketing platforms.

Course Outcomes:

CO1- students will be able to understand the concept of digital marketing and its integration with traditional marketing.

CO2- students will be able to understand customer value journey in digital context and behaviour of online consumers.

CO3- students will be able to understand email, content and social media marketing and apply the learnings to create digital media campaigns.

CO4- students will be able to examine various tactics for enhancing a website's position and ranking with search engines.

CO5- students will be able to examine various tactics for enhancing a website's position and ranking with search engines.

CO6- students will be able to leverage the digital strategies to gain competitive advantage for business and career.

Syllabus:

Unit 1: Marketing in the Digital World (3 weeks)

Digital marketing: Concept, Features, Difference between traditional and digital marketing, Moving from traditional to digital Marketing; Digital Marketing Channels: Intent Based- SEO, Search Advertising; Brand Based-Display Advertising; Community Based-Social Media Marketing; Others-Affiliate, Email, Content, Mobile. Customer Value Journey: 5As Framework; The Ozone O3 Concept Key; Traits of online consumer

Unit 2: Content and Email Marketing (2 weeks)

Content Marketing: Step-by-step Content Marketing Developing a content marketing strategy Email Marketing: Types of Emails in email marketing, Email Marketing best practices

Unit 3: Social Media Marketing and Display Marketing (5 weeks)

Social Media Marketing: Building Successful Social Media strategy; Social Media Marketing Channels; Facebook, LinkedIn, YouTube (Concepts and strategies) Display Advertising: Working of Display Advertising; Benefits and challenges; Overview of Display ad Process.; Define- Customer, Publisher, Objectives; Format- Budget, Media, Ad Formats, Ad Copy.

Unit 4 Search Engine Marketing (5 weeks)

Introduction of SEM: Working of Search Engine; SERP Positioning; online search behaviour, DMIs 5P Customer Search Insights Model. Search Engine Optimization: Overview of SEO Process; Goal Setting-Types.

On-Page Optimization: Keyword Research, SEO Process -Site Structure, Content, Technical Mechanics, Headings, Image & Alt text, Social Sharing, Sitemaps, Technical Aspects- Compatibility, Structured Data Markup.

Off Page Optimisation: Link Formats, Link Building, Content Marketing, Social Sharing; Black and White Hat Techniques Search Advertising: Overview of PPC Process Benefits of Paid Search; Basis of Ranking; Goal Setting-Objectives; Account Setting-Creation of Google Ads, Campaign architecture, Campaign setup, Targeting, Bid Strategy, Delivery, Ad Scheduling, Ad Rotation, Keyword Selection; Ad Copy composition, Ad Extension.

### **Essential/recommended readings**

- J Dodson, I. (2016). The art of digital marketing: the definitive guide to creating strategic, targeted, and measurable online campaigns. John Wiley & Sons.
- Kartajaya, H., Kotler, P., & Setiawan, I. (2016). Marketing 4.0: moving from traditional to digital. John Wiley & Sons.
- Ryan, Damien: Understanding Digital Marketing - Marketing Strategies for Engaging the Digital Generation. Kogan Page Limited.

### **Suggested Readings**

- Moutusy Maity: Internet Marketing: A practical approach in the Indian Context: Oxford Publishing
- Seema Gupta: Digital Marketing: Mcgraw Hill

- Ultimate guide to digital Marketing by Digital Marketer

### Fifth Semester

S.NO	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs
1		Public Finance	Major (DSC)	4	3	1	0	4
2		Time Series Analysis and Forecasting	Minor	4	2	0	4	6
3		DSE 2	Major DSE	4	3	1	0	4
4		DSE 3	Major DSE	4	3	1	0	4
5		SEC 3	SEC	2	2	0	0	2
6		Evaluation of Summer Internship		2	-	-	-	-
<b>Total Credit = 20</b>								<b>20</b>

### PUBLIC FINANCE

	Public Finance	L	T	P	C
<b>Version 1.0</b>		<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>	--				

#### Course Objectives

- To learn the theory and concepts of public finance
- Discuss the use of taxes and public expenditures for promoting socially efficient resource allocation and a desirable income distribution.
- To understand the role of taxes in supporting public provision of goods and services.
- To analyse the tax policy and understand the market effects of tax.

## Course Outcomes

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

CO1. Explain the concept of public finance and government budget

CO2 Discuss the use of taxes and public expenditures for promoting socially efficient resource allocation and equitable income distribution

CO3 Understand the effects of taxes in markets and economy

CO4 Analyze the tax policy and the issues which underline budgetary policies in general and Indian experience

CO5 Explain the tax policy reforms.

CO6 Explain the socio-economic implications of budgetary policies.

## Syllabus

### Unit-I: Basics of Public Finance

Introduction to Public Finance: Nature, Scope, and Importance. Theory of Maximum Social Advantage. Private goods, public goods, and Merit goods. Overview of different roles of government: allocation, stabilization, and distribution. Optimal provision of public goods.

### Unit-II: Govt. Budgeting

Budgeting: various concepts, reforms in expenditure budgeting, zero-based budgeting, and performance budgeting. Budgets of the Union Government in India, the budget-making process in India; Revenue Account, Capital Account, and different concepts of budgetary deficits in the Indian context.

### Unit-III: Public Expenditure

Public expenditure: Rationale for the growth of public expenditure: Wagner's law of increasing state activities; peacock-Wiseman hypothesis. Canons of public expenditure, causes of growth of public expenditure in India, Effects of public expenditure on production, growth, distribution and stabilization.

### Unit-IV: Public Revenue

Theory of Taxation: Various approaches to taxation, neutrality, equity, ability to pay, benefit principle, revenue maximization, income maximization; analysis of the incidence of taxes, elasticity, buoyancy and taxable, capacity, efficient tax design: optional taxation, effects of taxation on work effort, savings, investment, and growth; classification of taxes: direct and indirect taxes, progressive, proportionate and regressive taxes, Ad-valorem and specific taxes; tax systems in India; structure, composition, and various economic issues; Concept of Goods and Service Tax (GST); Trade-off between equity and efficiency, Laffer curve analysis.

## SUGGESTED READINGS:

- Lekhi, R. K., Singh, Joginder: Public Finance, Kalayani Publishers.
- Hajela, T.N. 'Public finance. (4<sup>th</sup> Ed.) Ane Books Pvt Ltd, 2010.
- Musgrave, R & Musgrave, P B: Public Finance in Theory and Practice. McGraw – Hill International Eds.
- Peacock, and Straw, G K (1970): The Economic Theory of Fiscal Policy
- Chelliah, R C (1996): Sustainable Growth, Essays on Financial and Fiscal Sector Reforms, Oxford University Press.
- Raghbendra Jha (1999): Modern Public Economics, Rotledge
- Govt. of India, Ministry of Finance: Sarkaria Commission Report on Centre State Financial Relations.



**Modes of Evaluation: Quiz/Assignment/ Attendance extempore/ Written Examination Examination Scheme:**

Components	Quiz I	Quiz II	Mid Term Exam	Attendance	End Term Exam
Weightage (%)	10	10	20	10	50

Programme and Course Mapping																	
CO	P O 1	P O 2	P O 3	P O 4	P O 5	P O 6	P O 7	P O 8	P O 9	PO 10	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6	
CO1	3			2			3	3					3	3	2	2	
CO2	3	2	2	2			3	3	2		2	3	3		2		
CO3	3	2		3			3	2	2		2	3	3				
CO4	3	2	2	2			3	3	2		2	3	3		2	2	
CO5	3	2	2	2			3	3	2		2	3	3	2	2	2	
CO6	2	2					3		2		2	3	3		2	2	
	1=lightly mapped			2= moderately mapped						3=strongly mapped							
<b>Unit I</b>	<b>Basics of Public Finance</b>																
Local																	
Regional	Public Finance: Nature, Scope and Importance. Positive vs. Normative Public Finance, Role of Government in the Economic Activity; Allocation, Distribution and Stabilisations																
National	Public Finance: Nature, Scope and Importance. Positive vs. Normative Public Finance, Role of Government in the Economic Activity; Allocation, Distribution and Stabilisations																
Global																	
Employability	Role of Government in the Economic Activity; Allocation, Distribution and Stabilisations																
Entrepreneurship	Role of Government in the Economic Activity; Allocation, Distribution and Stabilisations																
Skill Development	Role of Government in the Economic Activity; Allocation, Distribution and Stabilisations																
Professional Ethics																	
Gender																	
Human Values																	
Environment & Sustainability																	
<b>Unit II</b>	<b>Govt. Budgeting</b>																
Local	Government Budgets, Concept of PPB, zero based budgeting, government policy and its impact																
Regional	Government Budgets, Concept of PPB, zero based budgeting, government policy and its																

	impact
National	Government Budgets, Concept of PPB, zero based budgeting, government policy and its impact
Global	Government Budgets
Employability	Government Budgets, Concept of PPB, zero based budgeting, government policy and its impact
Entrepreneurship	Government Budgets, Concept of PPB, zero based budgeting, government policy and its impact
Skill Development	Government Budgets, Concept of PPB, zero based budgeting, government policy and its impact
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	
<b>Unit III</b>	<b>Public Expenditure</b>
Local	
Regional	Public Expenditure
National	Public Expenditure
Global	Wagner's Law of increasing state activities; Peacock-Wiseman Hypothesis
Employability	Public Expenditure
Entrepreneurship	Public Expenditure
Skill Development	Public Expenditure
Professional Ethics	Canons of Public Expenditure
Gender	
Human Values	
Environment & Sustainability	
<b>Unit IV</b>	<b>Public Revenue</b>
Local	Public Revenue: Sources of Public Revenue, Tax
Regional	Public Revenue: Sources of Public Revenue, Tax
National	Public Revenue: Sources of Public Revenue, Tax
Global	Public Revenue: Sources of Public Revenue, Tax
Employability	Public Revenue: Sources of Public Revenue, Tax
Entrepreneurship	Public Revenue: Sources of Public Revenue, Tax

urship	
Skill Development	Public Revenue: Sources of Public Revenue, Tax
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	
<b>SDG</b>	SDG 17, 8
<b>NEP 2020</b>	Multidisciplinary education, Professional Education, , Vocational education, Lifelong learning
<b>POE/4th IR</b>	Skill development, employability, Entrepreneurship

### Economic History of India (DSE)

	<b>Economic History of India</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>Version 1.0</b>		<b>3</b>	<b>1</b>	<b>0</b>	<b>4</b>
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>	--				

**Course Objective:** This course analyses key aspects of Indian economic development during the second half of British colonial rule. In doing so, it investigates the mechanisms that linked economic development in India to the compulsions of colonial rule.

**Course Learning Outcomes:** The course develops critical analytical skills and exposes students to understanding the intricacies of India’s economic, political and social developments both in the past and present times. It increases their employability by enhancing their ability to deal with a variety of textual and statistical sources, and to draw upon them to construct a coherent argument. These skills would be useful in a variety of careers in academics, research, journalism and the government.

#### **UNIT – I**

Why study economic history, the problems in interpreting India ‘s past, the state of the Indian Economy on the eve of independence, the Indian Economy in the mid-nineteenth century, the growth of the empire, and systems of land settlements in Colonial India.

#### **UNIT - II**

Transformation of the traditional village – economy during the British rule, Commercialization of agriculture – its causes and consequences, Emergence of agricultural labour as a category, movement of agricultural wages and prices during the period – problems of rural indebtedness.

#### **UNIT – III**

The state of industrial development in mid-nineteenth century India, the de-industrialization thesis –its statement and validity, emergence of modern capitalist industrial enterprise in India – Textile (Jute and Cotton), Iron & Steel, Cement, Coal, Tea.

#### **UNIT – IV**

Foreign capital in Colonial India – its extent and impact; foreign-trade-growth and composition; ‘guided under-development’ of India under British rule; evolution of provincial finance, the nature and problem of public debt; Economic drain from India -form, extent, and consequences.

#### **Suggested Reading:**

1. Balachandran, G. (2016). Colonial India and the world economy, C. 1850- 1940. In L. Chaudhary, B. Gupta, T. Roy, A. Swami (eds.): A new economic history of colonial India. Routledge.
2. Bogart, D., Chaudhary, L. (2016). Railways in colonial India: an economic achievement? In L. Chaudhary, B. Gupta, T. Roy, A. Swami (eds.): A new economic history of colonial India. Routledge.
3. Chaudhary, L., Gupta, B., Roy, T., Swami, A. (2016). Agriculture in colonial India. In L. Chaudhary, B. Gupta, T. Roy, A. Swami (eds.): A new economic history of colonial India. Routledge.
4. Chaudhuri K. (1982). Foreign trade and balance of payments (1757-1947). In D. Kumar, T. Raychaudhari (eds.): Cambridge economic history of India 1757-c.1970 2. Orient Longman.
5. Guha, S. (1991). Mortality decline in early 20th century India. *Indian Economic and Social History Review*, 28(4), 371-87.
6. Jain, L. (2011). Indigenous credit instruments and systems. In M. Kudaisya (ed.): *The Oxford India anthology of business history*. Oxford University Press.
7. Klein, I. (1984). When rains fail: Famine relief and mortality in British India. *Indian Economic and Social History Review*, 21, 185-214.
8. Krishnamurty, J. (1982). Occupational structure. In D. Kumar, T. Raychaudhari (eds.): *Cambridge economic history of India 1757-c.1970 2*. Orient Longman.
9. Morris, M. (1965). *Emergence of an industrial labour force in India*. Oxford University Press.
10. Parthasarathi, P. (2009). Historical issues of deindustrialization in nineteenth century south India. In T. Roy, G. Riello (eds.): *How India clothed the world: The world of south Asian textiles, 1500-1850*. Brill Academic.
11. Parthasarathy, P. (2011). *Why Europe grew rich and Asia did not: Global economic divergence, 1600-1850*. Chapters 2, 8. Cambridge University Press.
12. Ray, R. (1994). Introduction. In R. Ray (ed.): *Entrepreneurship and industry in India 1800-1947*. Oxford University Press.
13. Roy, T. (2018). *A business history of India: Enterprise and the emergence of capitalism from 1700*. Chapters 4, 5, 6. Cambridge University Press.
14. Roy, T. (2011). *The Economic History of India 1857-1947*, 3rd ed. Chapters 3, 5, 6, 11. Orient Longman.
15. Washbrook, D. (2012). The Indian economy and the British empire. In D. Peers, N. Gooptu (eds.): *India and the British Empire*. Oxford University Press.

**Modes of Evaluation: Quiz/Assignment/ Attendance extempore/ Written Examination  
Examination Scheme:**

Components	Quiz I	Quiz II	Mid Term Exam	Attendance	End Term Exam
Weightage (%)	10	10	20	10	50

**Game Theory (DSE)**

	Game Theory	L	T	P	C
Version 1.0		3	1	0	4
Pre-requisites/Exposure					
Co-requisites	--				

**Course Objective:** This course introduces undergraduate students to understand the basic principles of strategic analysis including solution concepts and be able to apply abstract theory to concrete problems. They also able to compute pure and mixed strategy Nash equilibria in normal form games, compute pure and mixed subgame perfect equilibria in extensive form games. They also able to formulate strategic problems in analytical terms and analyse them using tools provided by the theory.

**Unit 1**

Elements of Game theory, examples, Strategic Games, 2 Player Strategy Games, payoffs, Minimax, Weak and Strong Domination, Saddle Points, Nash Equilibrium, Prisoner's Dilemma, Stag Hunt, Matching pennies, BOS, Multi NE, Cooperative and Competitive Games, Strict and Non Strict NE, Best response functions for NE.

**Unit 2**

Combinatorial games, Winning and losing positions, Subtraction Game, 3-Pile and K-Pile Games, Proof of Correctness, Variations of K-Pile Games, Graph Games, Construction, Proof of finiteness, SG theorem for sum of games.

**Unit 3**

Cournot's Oligopoly, Bertrand's Oligopoly, Electoral Competition, Median Voter Theorem, Auctions, role of knowledge, Decision making and Utility Theory, Mixed Strategy Equilibrium, Extensive Games with Perfect Information, Stackelberg's model of Duopoly, Buying Votes, Committee Decision making, Repeated Gmes, Prisoner's Dilemma, Supermodular Game and Potential games

**Textbook(s)**

Martin Osborne, An Introduction to Game Theory, Oxford University Press.

**Reference(s)**

Thomas Ferguson, Game Theory, World Scientific, 2018.

Stef Tijs. Introduction to Game Theory, Hindustan Book Agency.

Allan MacKenzie, Game Theory for Wireless Engineers, Synthesis Lectures On Communications.

**Modes of Evaluation: Quiz/Assignment/ Attendance extempore/ Written Examination  
Examination Scheme:**

Components	Quiz I	Quiz II	Mid Term	Attendance	End Term
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			<b>Exam</b>		<b>Exam</b>
<b>Weightage (%)</b>	<b>10</b>	<b>10</b>	<b>20</b>	<b>10</b>	<b>50</b>

### Entrepreneurship (SEC 3)

<b>SEC003</b>	Entrepreneurship	L	T	P	C
<b>Version 1.0</b>		2	0	0	2
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>	--				

#### Course Objectives

The purpose of the course is that the students acquire necessary knowledge and skills required for organizing and carrying out entrepreneurial activities, to develop the ability of analysing and understanding business situations in which entrepreneurs act and to master the knowledge necessary to plan entrepreneurial activities. The objective of the course is, further on, that the students develop the ability of analysing various aspects of entrepreneurship – especially of taking over the risk, and the specificities as well as the pattern of entrepreneurship development and, finally, to contribute to their entrepreneurial and managerial potentials.

#### Course Outcomes

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

CO1. Develop idea generation, creative and innovative skills

CO2. Aware of different opportunities and successful growth stories

CO3. Learn how to start an enterprise and design business plans those are suitable for funding by considering all dimensions of business.

CO4. Understand entrepreneurial process by way of studying different case studies and find exceptions to the process model of entrepreneurship.

#### Catalog Description

A fundamental outcome of entrepreneurship is the creation of new value, usually through the creation of new products and services which may lead to the creation of a new business entity. The objective of this course is to demonstrate and understand that exploiting a new opportunity is a process that can be planned, resourced, and managed. To start a successful business, an entrepreneur must exercise motivation as well as enterprising and managerial skills. He or she requires access to resources to grow the business; not just investment but social resources as well. Overall success is not just related to the nature of market opportunities but to the entrepreneurial and managerial motivations and skills of the entrepreneur

#### Course Content

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## **Course Syllabus:**

### **UNIT-I**

Entrepreneurship – Concept, knowledge and skills requirement, characteristics of successful Entrepreneurs, role of entrepreneurship in economic development, entrepreneurship process, factors impacting emergence of entrepreneurship, managerial vs. entrepreneurial approach and emergence of entrepreneurship

### **UNIT-II**

Creating Entrepreneurial Venture – Environmental scanning, competitor and industry analysis; feasibility study – market feasibility, technical/operational feasibility, financial feasibility; drawing business plan; preparing project report; presenting business plan to investors

### **UNIT-III**

Sources of Finance – Debt or equity financing, commercial banks, venture capital; financial Institutions supporting entrepreneurs; legal issues – intellectual property rights patents, trademarks, copy rights, trade secrets, licensing, franchising .

### **UNIT-IV**

Role of Central and State Governments in promoting entrepreneurship – Start-up India, Standup India, PM Yuva Yojna, NITI Aayog, Various incentives, subsidies, fiscal and tax concessions; agencies in entrepreneurship development – District Industries Centres (DICs), Small Industries Service Institute (SISI), Entrepreneurship Development Institutes of India (EDII); Women Entrepreneurs – role, problems, prospects.

### **References:**

1. Tendon, C: Environment and Entrepreneur; Clough Publications, Allahabad.
2. Siner A David: Entrepreneurial Megabucks; John Wiley and Sons, New York.
3. Srivastava S. B: A Practical Guide to Industrial Entrepreneurs; Sultan Chand and Sons, New Delhi.

## **Sixth Semester**

S.NO	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs
1		Indian Economy	Major DSC	4	3	1	0	4
2		History of Economic Ideas	Major (DSC)	4	3	1	0	4
3		Data Analysis of Indian Economy-Practical	Major DSC	1	0	0	1	2
4		Minor 6	Minor	4	2	0	4	6
5		DSE 4	Major DSE	4	3	1	0	4
6		SEC 4	SEC	2	2	0	0	2
<b>Total Credit = 19</b>								<b>22</b>

### **Indian Economy**

	Indian Economy	L	T	P	C
<b>Version 1.0</b>		3	1	0	4
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>	--				

#### **Course Objectives**

- To learn the process involved in the development of Indian Economy.
- To understand the role of agriculture in economic growth and development
- To be aware of the economy as a whole

#### **Course Outcomes**

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

- CO1. Develop ideas of the basic characteristics of Indian economy, its potential on natural resources.
- CO2. Understand the importance, causes and impact of population growth and its distribution, translate and relate them with economic development.
- CO3. Grasp the importance of planning undertaken by the government of India, have knowledge on the various objectives, failures and achievements as the foundation of the ongoing planning and economic reforms taken by the government.



CO4. Understand agriculture as the foundation of economic growth and development, analyse the progress and changing nature of agricultural sector and its contribution to the economy as a whole.

CO5 To understand the past and present economic conditions of the country.

CO6 To Identify major issues debates, or approaches concerning economy.

### **Syllabus:**

#### **Unit I: Introduction to Indian Economy**

Basic characteristics and features of Indian economy. Changes in structure of Indian Economy (Primary Sector, Secondary Sector & Tertiary Sector). Economic Planning in India: Features, Objectives and Assessment of Indian Planning.

#### **Unit II: Population, Poverty, Inequality**

Demographic features of India's population; Change in the distribution of Income and Workforce in India; Demographic dividend of India; **Poverty in India**- concepts, incidence & extent of poverty in India, Inter-state disparities in the pattern of development, Concept of Inequality and measurement through Lorenz curve, Gini Coefficient, Gender Development Indices

#### **Unit III: Agriculture & Industry**

Features of Indian Agriculture; Land relations and land reforms; technological aspects, rural credit; pricing of agricultural produce; Impact of Green Revolution on Indian Agriculture, Recent reforms in Agricultural sector.

Industrial policy: Growth and pattern of industrialization; small-scale sector; Productivity in industrial sector, Public Sector enterprises and their performance; Problem of sick units in India; Privatization and disinvestment debate.

#### **Unit IV: Trade and Indian Economy**

Foreign Trade: Salient features of India's foreign trade; Trends in foreign trade in the recent past, Balance of payment, Balance of Trade, Trade Policy, Trade Reforms, Foreign Exchange Management Act (FEMA), Export Promotion.

WTO, GATT, TRIMS, TRIPS, Foreign Direct Investment, Foreign Institutional Investment. LPG Policies.

### **SUGGESTED READINGS:**

- Brahmananda, P.R. and Panchmukhi : The Development Process of Indian Economy, V.R. (eds.) 1987 Himalaya Publishing House, Bombay.
- Lucas ,E.B., and Papanek, G.F.: The Indian Economy- Recent Developments and (eds.) 1988 Future Prospects, Oxford University Press, New Delhi.
- Jalan, Bimal 1992 : The Indian Economy – Problem and Prospects, Viking, New Delhi.
- Byres, T J (Ed.) (1998): The Indian Economy: Major Debate Since Independence, Oxford University Press, New Delhi.
- Economic Survey: Government of India. Various Issues.

- Economic and Political Weekly: Various Issues.
- Koutsoyiannis, A.; Modern Micro Economics, Macmillan Press Ltd.
- Salvator, Dominick, Managerial Economics, McGraw-Hill Book Company
- Chaturvedi, D.D. and S. L. Gupta; Business Economics, Brijwasi Publishers.
- Gould & Lajear Micro Economics.
- Richard A. Bilas Micro Economic Theory
- Paul, A. Samuelson Economics
- R. H. Lelftwich The Price system and Resource Allocation.
- Joseph E. Stiglitz Economics, W.W. Norton & Company, New York, London.

**Modes of Evaluation: Quiz/Assignment/ Attendance extempore/ Written Examination Examination Scheme:**

Components	Quiz I	Quiz II	Mid Term Exam	Attendance	End Term Exam
Weightage (%)	10	10	20	10	50

Programme and Course Mapping																	
CO	P O 1	P O 2	P O 3	P O 4	P O 5	P O 6	P O 7	P O 8	P O 9	PO 10	PS O1	PS O2	PS O3	PS O4	PS O5	PS O6	
CO1	3	3	2		3		3	3			3	3	3	2	2		
CO2	3	3	2		3	3	3	3	2		3	3	3	2	2		
CO3	3	3	2		3	3	3	3	2		3	3	3	2	2		
CO4	3	3	2	1	3	3	3	3	2		3	3	3	2	2	1	
CO5	3	3	2		3		3	3			3	3	3	3	3		
CO6	3	3	2	2	3		3	3			3	3	3	2	2		
	1=lightly mapped			2= moderately mapped						3=strongly mapped							
Unit I	<b>Introduction to Indian Economy</b>																
Local																	
Regional																	
National	Characteristics and features of Indian economy. Changes in structure of Indian Economy, Economic Planning																
Global																	
Employability	Economic Planning																
Entrepreneurship	Economic Planning																
Skill	Economic Planning																

Development	
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	Changes in structure of Indian Economy
Unit II	<b>Demographic features of India's population</b>
Local	
Regional	Inter-state disparities in the pattern of development
National	Structural Change in the distribution of Income and Workforce in India. National Income: Growth and composition; Contribution of different sector & growth pattern
Global	Growth and composition; Contribution of different sector & growth pattern
Employability	Structural Change in the distribution of Income and Workforce in India. National Income: Growth and composition; Contribution of different sector & growth pattern
Entrepreneurship	Contribution of different sector & growth pattern
Skill Development	
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	
Unit III	<b>Poverty in India</b>
Local	
Regional	Poverty, Inequality, Social justice, Unemployment
National	Poverty, Inequality, Social justice, Unemployment
Global	Poverty, Inequality, Social justice, Unemployment
Employability	
Entrepreneurship	
Skill Development	
Professional Ethics	
Gender	Gender Development Indices
Human	Social justice

Values	
Environment & Sustainability	Poverty
Unit IV	<b>Agriculture</b>
Local	Agriculture, rural credit,
Regional	Indian Agriculture, Land Reforms, Rural Credit, Green Revolution
National	Indian Agriculture, Land Reforms, Rural Credit, Green Revolution
Global	
Employability	Indian Agriculture, Land Reforms, Rural Credit, Green Revolution
Entrepreneurship	Indian Agriculture, Land Reforms, Rural Credit, Green Revolution
Skill Development	Indian Agriculture, Land Reforms, Rural Credit, Green Revolution
Professional Ethics	
Gender	
Human Values	
Environment & Sustainability	Green Revolution
SDG	SDG 8, 12, 17
NEP 2020	
POE/4 <sup>th</sup> IR	

### History of Economic Ideas

	History of Economic Ideas	L	T	P	C
<b>Version 1.0</b>		3	1	0	4
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>	--				

#### Course Objective

**The goals of the course are:**

- That the students learn and remember the major bodies of economic thought
- That the application of these ideas becomes part of the student's day to day thinking
- That the student's ability to write in an academic manner improves qualitatively; and
- Describe the contributions of the main economic thinkers and their connections to current methodological developments.

## UNIT I

**Mercantilism:** main characteristics; Physiocracy: natural order, primacy of agriculture, social classes, Tableau Economique, and taxation.

## UNIT II

**The Classical System :** Adam Smith- Division of labour, Theory of value and distribution; David Ricardo- Theory of value and distribution, T.R. Malthus- Theory of population and the theory of Glut.

## UNIT III

J.S. Mill-Laissez faire and protection, J.B.Say- The law of markets, K.Marx- Theory of value; Theory of capitalist competition. Subjectivism and Marginalism.

## UNIT IV

**The historical schools :** H.H. Gossen; W.S. Jevons; G. Cassel, The Austrian School: K. Menger; Bohm-Bawerk. L. Walras: General equilibrium analysis. The Mathematical School: A. Cournot; F.V.Edgeworth; I.Fisher, The American contribution: J.B. Clark; A. Walker; J.A. Schumpeter.

### Basic Reading List :

1. Smith, A. An Enquiry into the Nature & Causes of the Wealth of Nations.
2. Ricardo, D. Principles of the Political Economy and Taxation.
3. St. Clair, O. A Key to Ricardo.
4. Saraffa, P, (ed) Works of David Ricardo.

### Data Analysis of Indian Economy-Practical

	<u>Data Analysis of Indian Economy- Practical</u>	L	T	P	C
<b>Version 1.0</b>		0	0	1	1
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>	--				

#### Unit-I **Data Base of Indian Economy**

Importance of data in economic analysis and Policy formulation. Nature and Types of data: Sample, Census, Primary, Secondary, Micro, Aggregative etc. Statistical and Data Collection system in India at the Centre and in the States. Major Statistical Publications in India.

#### Unit-II: **Data Analysis through MS Excel**

Introduction to Microsoft Excel- Creation of worksheets; Data entry, formatting, sorting and validation; Importing and exporting of data files and web queries. - Uses of mathematical, financial and statistical function and what if analysis. - Data Analysis: ANOVA, Correlation, F-test, Z-test and t-test. - Creation of diagrams and graphs. - regression and Forecasting using worksheets. (ii) Introduction to Microsoft Power Point: 28 Preparation of presentations in Power point using design template and Text structure layouts.

## Contemporary Economic Issues

	Contemporary Economic Issues	L	T	P	C
<b>Version 1.0</b>		3	1	0	4
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>	--				

Course Objective: The course shall focus on various aspects of Union Budget, Goods and Services Tax, Finance commission & Fiscal Federalism, Contemporary economic issues and ideas discussed in Economic Survey.

### Unit I: **Concepts**

Fiscal policy, areas of government spending in India, Capital and revenue expenditure, plan and non-plan expenditures, Deficits (fiscal, primary, revenue), impact of fiscal deficits on the economy, Capital receipts, revenue receipts, tax and non-tax revenue, direct and indirect taxes, need for rationalization of tax structure, Goods and Services Tax (GST), Actual, revised and budget estimates, Zero-base budgeting, Gender budgeting, Fiscal devolution and centre-state financial relations

### Unit II: **Union Budget**

Need for the budget, understanding the process of budget making in India, Analysis of fiscal and revenue deficits, Analysis of expenditure pattern and expected growth in expenditure, thrust areas of budget, sectors that have received higher/lower shares of expenditure, the reasons and consequences thereof, steps proposed to ensure effective spending.

### Unit III: **Economic Survey**

Analysis and Review Past and Current Economic Survey of India

### Unit IV: **Comparative Analysis**

Performance of Indian Economy as compare to global Economy in terms of growth, development and structural changes (Compare with China, USA, Other developing nations)

### Suggested Reading

#### 1. Union Budget & Goods and Services Tax

- a. The Key to Budget Documents, available at: [https://www.indiabudget.gov.in/doc/Key\\_to\\_Budget\\_Document\\_2023.pdf](https://www.indiabudget.gov.in/doc/Key_to_Budget_Document_2023.pdf)
- b. Budget at a Glance, available at: [https://www.indiabudget.gov.in/doc/Budget\\_at\\_Glance/budget\\_at\\_a\\_glance.pdf](https://www.indiabudget.gov.in/doc/Budget_at_Glance/budget_at_a_glance.pdf)
- c. Let's Talk About Budget. Centre for Budget and Governance Accountability. Chapters 4 to 6. Union Budget of India, Making of Union Budget, What does Union Budget papers look like? This text can be downloaded from PRIMER-1-FIN.pdf (cbgaindia.org). De-emphasize pages: Pg 29 (Chapter 4 Plan and Non-plan Expenditure) and 37(Preparation of Union Budget Section) 2
- d. Goods and Service Tax (GST): Concept and Status (as on 01st July, 2019); CBIC, Department of Revenue, Ministry of Finance. Pg. 3-15, 36 (section 10)-44, 48-50 <https://gstcouncil.gov.in/sites/default/files/GST-Concept-and-Status01072019.pdf>
- e. Das S (2017): "Some Concerns Regarding the Goods and Services Tax," Economic and Political Weekly, Vol. 52, No. 9 (March 4, 2017) available at: <http://www.epw.in/journal/2017/9/webexclusives/some-concerns-regarding-goods-and-servicestax.html>
- f. Dipak Dasgupta and Supriyo De (2012), "Fiscal Deficit", in Basu and Maertens.

[https://dea.gov.in/sites/default/files/FPI\\_trends\\_Trajectory.pdf](https://dea.gov.in/sites/default/files/FPI_trends_Trajectory.pdf) g. D K Srivastava, Muralikrishna Bharadwaj, Tarrung Kapur, Ragini Trehan (2021) “Taxing Petroleum Products - Sharing Revenue Space between Centre and States” Economic and Political Weekly, Vol. 56, Issue No. 9, 27 Feb, 2021

2. Fiscal Federalism

a. Y V Reddy (2015), “Continuity, Change and The Way Forward: Fourteenth Finance Commission”, EPW Vol. 50, Issue No. 21, 23 May 2015. (Pg.27-31, Subpoint 1-9)

b. Chakraborty, Lekha (2019) “Indian Fiscal Federalism at the Crossroads: Some Reflections”, NIPFP working paper no 260 available at: [https://www.nipfp.org.in/media/medialibrary/2019/05/WP\\_260\\_2019.pdf](https://www.nipfp.org.in/media/medialibrary/2019/05/WP_260_2019.pdf)

c. The Fifteenth Finance Commission (FFC) Report for the Year 2021-26 Chapter 1 titled “Introduction” available at: <https://fincomindia.nic.in/ShowContent.aspx?uid1=3&uid2=0&uid3=0&uid4=0>

3. Economic Survey- 2022-23

a. State of the economy (Economic Survey 2022-23-Chapter 1) <https://www.indiabudget.gov.in/economicsurvey/doc/eschapter/echap01.pdf>

b. Fiscal Development (Economic Survey 2022-23- Chapter 3) [www.indiabudget.gov.in/economicsurvey/doc/eschapter/echap03.pdf](https://www.indiabudget.gov.in/economicsurvey/doc/eschapter/echap03.pdf)

c. Monetary Management and Financial Intermediation (Economic Survey 2022-23- Chapter 04) <https://www.indiabudget.gov.in/economicsurvey/doc/eschapter/echap04.pdf>

d. Prices and Inflation (Economic Survey 2022-23- Chapter 5) <https://www.indiabudget.gov.in/economicsurvey/doc/eschapter/echap05.pdf>

e. External Sector (Economic Survey 2022-23-Chapter 11) [www.indiabudget.gov.in/economicsurvey/doc/eschapter/echap11.pdf](https://www.indiabudget.gov.in/economicsurvey/doc/eschapter/echap11.pdf)

### Rural Economy

	<b><u>Rural Economy</u></b>	L	T	P	C
<b>Version 1.0</b>		3	1	0	4
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>	--				

To create awareness among the students regarding the Rural Economy.

- To study the Indian Agriculture.
- To study the concepts of rural poverty and unemployment and its relief measures.
- To study the rural industrialization, finance, irrigation, electrification, and infrastructures.
- To study the agricultural marketing and agricultural price policies.
- To study the Public Distribution System (PDS).

### Course Outcomes

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

- CO1: Develop ideas of the basic characteristics of rural economy, its importance and animal husbandry.
- CO2: Understand the importance, causes and impact of rural economy and relate them with economic development.
- CO3: Grasp the importance of the rural industrialization, finance, irrigation, electrification, and infrastructures undertaken by the government of India, and reforms taken by the government.
- CO4: Understand the agricultural marketing and agricultural price policies as the progress and changing nature of agricultural sector and its contribution to the economy as a whole.
- CO5: To understand the Public Distribution System (PDS) and its function of the country.
- CO6: To Identify major issues on concepts of rural poverty and unemployment and its measures.

### **Catalog Description**

At the end of the course, a student should be able to understand the basic ideas of rural economy in India since independence and evaluate its impact on economic as well as role and importance to country's progress and well-being.

#### **UNIT I 15 Hours**

**Rural Economy in India**-Features of Rural Economy; Role and Importance of Animal Husbandry in Rural Economy; Place of Agriculture in Rural Economy.

#### **UNIT II 15 Hours**

**Agriculture and Industry in Rural Economy:** Farm Size, Land Utilization and Cropping Pattern, Agricultural Productivity Causes of Low Productivity in Agricultural, measures taken to improve the productivity. Agricultural Marketing- Importance, Merits, demerits and Measures to improve it. Need, Importance and problems of (a) Agro-based Industries (b) Small-scale and Cottage Industries

#### **UNIT III 15 Hours**

**Rural Poverty and Unemployment** - Causes, Extent, various Rural Development Programmers for reducing the rural Poverty and Unemployment

#### **UNIT IV 15 Hours**

**Public Utilities and Finance in Rural Economy** -Irrigation Facilities B) Transport and communication C) Rural Electrification; Public Distribution Systems (PDS) ; Need and Sources of rural Finance, Problem of Rural Indebtedness and its relief measures.

### **SUGGESTED READINGS:**

- "Agricultural Economics and Rural Development"- Tyagi. B.P. Jai Prakashan Nath & Co Garh-Nauchandi Chauraha Garh Road, Meerut-250002.
- Agricultural Problems of India- Mamoria C.B. & Tripathi.B.B. Century Printers, S.N. Marg Allahabad.
- The Indian Rural Problem- M.B. Nanavati and J.J. Anjaria (Vora and Co.Bombay)
- Indian Economy- Dutt R. and K.P.M. Sundharam (2007/Latest ed.) 25, S.Chand and company, New Delhi
- Indian Economy- Misra S.K. and V.K. Puri, Himalaya Publishing Co., Bombay (Latest ed.)



**Modes of Evaluation: Quiz/Assignment/ Attendance extempore/ Written Examination  
Examination Scheme:**

Components	Quiz I	Quiz II	Mid Term Exam	Attendance	End Term Exam
Weightage (%)	10	10	20	10	50

**Urban Economy**

	Urban Economy	L	T	P	C
Version 1.0		3	1	0	4
Pre-requisites/Exposure					
Co-requisites	--				

**Course Objectives**

- To create awareness among the students regarding the Urban Economics.
- To understand why do most people prefer to live in cities?
- To know what happens when they live in cities?
- To know what problem do they face in cities?
- To understand the problem of cities occurs with development of industrial townships.

**Course Outcomes**

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

CO1: Develop ideas of the basic characteristics of urban economics, its dimension.

CO2: Understand the importance, causes and impact of urban economics and relate them with economic development.

CO3: Grasp the idea of land use planning undertaken by the government of India, and reforms taken by the government.

CO4: Understand the Resource problems in urbanization - transportation, waste management and water.

CO5: To understand the Problems and limitations in Slums Areas.

CO6: To Identify major issues on Urban Poverty and measures, and Policies for improving it.

**Catalog Description**

At the end of the course, a student should be able to understand the basic ideas of urban economics in India since independence and evaluate its impact on economic as well as role and importance to country's progress and well-being.

**UNIT I 15 Hours**

**Introduction to Urban Economics** - Scope and Dimensions -The Nature and Function of Cities; Models of Urban Development and Planning- The Urban Economy and Development Strategy - The

Economics of Urban Growth - Models of Urban Growth - The Frontiers of Urban Growth -The Economics of Intra-urban Location Decisions- Residential and industrial locations-Semi urban areas-special townships.

**UNIT II 15 Hours**

**Land Use Planning-** General Urban Land-Use Models- The Determinants of Specific Land Uses; Changes in Land Uses- Land Use Policy- Land Reservation- Public Amenities - Town Planning-Small Cities Concept- Size of Livable Areas - Space Planning - Floor Space Index Concept

**UNIT III 15 Hours**

**Resource problems in urbanization - transportation, waste management and water** - traffic Congestion - Traffic management and Policies- Public transport Surveillances- Route Mapping Signal system - The Urban Environment - Environmental Pollution- Types of pollution and Management-Types of wastes: degradable and non-degradable - Garbage, Plastic, Biomedical Waste Managements – Sustainable development Policies.

**UNIT IV 15 Hours**

**Urban local Government-** Types local bodies and Governance- Cantonment Boards- Special Areas Improvement Trust: Functions, Problems and limitations- Slums Areas: Locations and Problems - slum development policy- Urban Poverty: Problems, Measures, and Policies- the Nature of Urban Poverty - The Causes of Poverty- Urban Crime and management

**SUGGESTED READINGS:**

- Hartwick, John M. (2015) Urban Economics, Routledge; 1st edition.
- O’Sullivan, Arthur (2012) Urban economics, 8th Ed., McGraw-Hill/Irwin
- Button, K. J. (1976) Urban Economics Theory and Policy, Palgrave Macmillan UK.
- Rakesh A Mohan (1978) Urban Economic and Planning Models Assessing the Potential for Cities in Developing Countries, OCP- 25, World Bank.
- Duranton, G. (2007). Urban Evolutions: The Fast, the Slow, and the Still. American Economic Review, 97 (1), 197-221. <http://dx.doi.org/10.1257/aer.97.1.197>.
- Henderson, J. V. (1974) The Sizes and Types of Cities, The American Economic Review, Vol. 64, No. 4 (Sep., 1974), pp. 640-656, URL: <https://www.jstor.org/stable/1813316> Accessed: 05-10-2018 12:02 UTC.
- Black, Duncan and Henderson, Vernon (1999), A Theory of Urban Growth, Journal of Political Economy, 1999, vol. 107, no. 2, The University of Chicago.

**Examination Scheme:**

Components	Quiz I	Quiz II	Mid Term Exam	Attendance	End Term Exam
Weightage (%)	10	10	20	10	50

**Basics of Artificial Intelligence (SEC-4)**

<b>SEC004</b>	Basics of Artificial Intelligence	L	T	P	C
<b>Version 1.0</b>		1	0	1	2

<b>Pre-requisites/Exposure</b>	
<b>Co-requisites</b>	--

Unit I:

Definition of Intelligence, Knowledge, Artificial Intelligence; importance, real time applications, Turing test, importance of Artificial Intelligence in today's era, Difference between Human Brain & Computer; Chinese Room Argument, 15-tile Puzzle Problem, Types of Knowledge, Knowledge Pyramid, Merits and Demerits of Artificial Intelligence.

Unit II:

Characteristics of AI Problems, Problem Representation techniques, Declarative and Procedural Representation, Monotonic & Non Monotonic Reasoning, Introduction to Brute Force Search: Breadth First Search & Depth First Search; Introduction to Heuristic Search: Hill Climbing & Problems associated with it, A\* Algorithm, Min – Max Game Playing Algorithm, Difference between Database and Knowledgebase, Knowledge Representation : Semantic Nets, Frames, Scripts.

Unit III:

An introduction to Machine Learning, Definition of Machine Learning, Learning, Classification of machine Learning; Supervised, Unsupervised and Reinforcement learning; 7 Types of Reasoning (With Definitions and Examples), Machine Learning Applications, Life Cycle of Machine Learning, Introduction to Fuzzy Logic.

Unit IV:

Fusion of AI with IOT, Case Studies: Artificial Intelligence & Machine Learning, Definition: Expert Systems, Neural Networks, Natural Language Processing, Expert System Life Cycle, Futuristic trends in Artificial Intelligence & Machine Learning

## Seventh Semester

S.No	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs
1		Research Methodology for Economics	Major DSC	4	3	1	0	4

2		International Trade & Finance	Major DSC	4	3	1	0	4
3		Data Driven Applications	Minor	4	2	0	4	6
4		DSE 5	Major DSE	4	3	1	0	4
<b>Total Credit = 16</b>								<b>18</b>

### Research Methodology

	<u>Research Methodology</u>	L	T	P	C
<b>Version 1.0</b>		3	1	0	4
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>	--				

#### **Course Objectives:**

The main objective of the course is to:

- To make students understand the meaning and purpose of a research work.
- To enable students to practice scientific approach
- To develop the attitude and skill of writing a research paper

#### **Course Outcomes**

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

- CO1. Identify the basic components of a research framework i.e., problem definition, research design, data collection, ethical issues in research, report writing, and presentation.
- CO2. Define foundational methods and techniques of academic research in Economics.
- CO3. Analyze how to formulate research problem and frame it for the purpose of research.
- CO4. Sensitize them to the issue of plagiarism and academic fraud.

#### **Unit I: Research Methodology**

Objectives and motivation of research - Types of research - Research approaches - Significance of research - Research methods verses methodology - Research and scientific method - Importance of research methodology - Research process - Approaches of investigation of solutions for research problem, data collection, analysis, interpretation, necessary instrumentations- Criteria of good research. Defining the research problem: Definition of research problem - Problem formulation - Necessity of defining the problem - Technique involved in defining a problem

## UNIT II: LITERATURE SURVEY AND DATA COLLECTION

Importance of literature survey - Sources of information - Assessment of quality of journals and articles - Information through internet. Effective literature studies approaches, analysis, plagiarism, and research ethics. Data - Preparing, Exploring, examining and displaying.

## UNIT III: RESEARCH DESIGN AND ANALYSIS

Meaning of research design - Need of research design - Different research designs - Basic principles of experimental design - Developing a research plan - Design of experimental set-up - Use of standards and codes. Overview of Multivariate analysis, Hypotheses testing and Measures of Association. Presenting Insights and findings using written reports and oral presentation.

## Unit IV: Writing a Research Paper & IPR

Structure of a Research paper; Literature Review; Citation methods; Application of research Ethics. Nature of Intellectual Property: Patents, Designs, Trade and Copyright. Process of Patenting and Development.

### Examination Scheme:

Components	Quiz I	Quiz II	Mid Term Exam	Attendance	End Term Exam
Weightage (%)	10	10	20	10	50

## International Trade & Finance

	<u>International Trade &amp; Finance</u>	L	T	P	C
Version 1.0		3		1	4
Pre-requisites/Exposure					
Co-requisites	--				

- To understand the theory of International Economics and its application to the real world.
- To understand current major issues and debates in global economy
- Understand the processes of international economic relation as part of global economy market
- To give students a thorough understanding of theories of International economics & its applications

### Course Outcomes

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

CO 1. Learn about the development of various trade theories

CO 2. Analyze contemporary issues in trade theory and policy.

CO3: Explain differences and similarities between regional, national, and international environment including political, economic and cultural elements.

CO4: Explain the major trade theories and models and how to apply those models

CO5: Describe the international monetary policy and international flow of money between countries like FDI

CO6: Develop analytical and critical thinking skills and use them to judge the appropriateness of international trade policy options.

**Unit -I: International Trade & Theories**

International Trade: Interregional and International Trade, Theories of absolute advantage, comparative advantage, and opportunity cost: Hecksher-Ohlin theory of trade-its main features, assumptions, and limitations. The Leontief’s paradox; The Rybczynski theorem-concept and policy implications of immiserizing growth.

**Unit-II: Terms of Trade & Tariff**

Gains from trade and Terms of Trade: Measurement of gains from trade and their distribution; Concepts of terms of trade, their uses, and limitations for less developed countries; Tariff, Quota, Non-Tariff Barrier.

**Unit-III: Exchange Rate & Balance of Payment**

Balance of Trade and Balance of Payments: Concepts and components of the balance of trade and balance of payments; Equilibrium and disequilibrium in the balance of payments: Various measures to correct the deficit in the balance of payments, Various approaches of BOP, Exchange Rate: Meaning, concept of equilibrium exchange rate and determination: Fixed versus flexible exchange rates: Managed floating exchange rate.

**Unit-IV: International Institutions**

International Institutions: Objectives, Functions, and Advantages for India of International Monetary Fund; World Bank; General Agreement on Tariffs and Trade (GATT) /World Trade Organisation (WTO), and South Asian Association for Regional Cooperation Preferential Trading Arrangement (SAPTA).

**SUGGESTED READINGS:**

- M. L. Jhingan: International Economics
- M. C. Vaish and : International Economics. Sudama Singh
- Mannur, H.G (2000). International Economics.
- Salvatore, D. (1997), International Economics, PHI, New York.
- Sodorston, Bo. (1991), International Economics, The Macmillan Press Ltd. London.
- Pilbeam, Keith (1998): International Finance, Palgrave.
- Mithani, M. D () International Economics.
- Bhagwati. J (1981), International Trade, Cambridge University Press, London.

**Modes of Evaluation: Quiz/Assignment/ Attendance extempore/ Written Examination Examination Scheme:**

Components	Quiz I	Quiz II	Mid Term Exam	Attendance	End Term Exam
Weightage (%)	10	10	20	10	50

Programme and Course Mapping																	
CO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PO	PS	PS	PS	PS	PS	PS

	1	2	3	4	5	6	7	8	9	10	O1	O2	O3	O4	O5	O6
CO 1	3			2	3		3	3	2		2	3	3	2	2	
CO 2	3			2	3		3	3	2		2	3	3	2	2	2
CO 3	3		2	2	3		3	3	2		2	3	3	2	2	2
CO 4	3			2	3		3	3	2		2	3	3	2	2	2
CO 5	3			2	3		3	3	2		2	3	3	2	2	2
CO 6	3			2	3	3	3	3	2			3	3	2	2	2
	1=lightly mapped			2= moderately mapped						3=strongly mapped						

### Applied Econometrics (DSE)

	<u>Applied Econometrics</u>	L	T	P	C
<b>Version 1.0</b>		3		1	4
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>	--				

**Course Objective** The course assumes that students have a basic knowledge of statistics, mathematics as well as basic econometric theory. It builds on the compulsory Introductory Econometrics course and teaches students a broad set of commonly used econometric methods. These include estimating models with limited dependent variables and the use of instrumental variables to estimate models with endogenous regressors.

**Course Learning Outcomes** Students will learn the theoretical basis for techniques widely used in empirical research and consider their application in a wide range of problems.

**Unit 1** Stages in empirical econometric research The linear regression model: estimation, specification and diagnostic testing: estimation, specification and inference

**Unit 2** Advanced topics in regression analysis: dynamic econometric models, instrumental variable estimation, measurement errors, Panel data models and estimation techniques: pooled regression, fixed and random effects models

**Unit 3** Limited dependent variables: logit and probit models for binary responses, tobit models for truncated data.

Unit 4 Introduction to econometric software; publicly available data sets and software will be used to estimate models and apply the techniques learned in class

## References

1. Gujarati, D. (2014). *Econometrics by example*, 2nd ed. Palgrave Macmillan. 33
2. Gujarati, D., Porter, D. (2012). *Basic econometrics*, 5th ed. McGraw-Hill.
3. Wooldridge, J. (2014). *Introduction to econometrics: A modern approach*, 5th ed. Cengage Learning.

## Examination Scheme:

Components	Quiz I	Quiz II	Mid Term Exam	Attendance	End Term Exam
Weightage (%)	10	10	20	10	50

## Labour Economics (DSE)

	<u>Labour Economics</u>	L	T	P	C
<b>Version 1.0</b>		3		1	4
<b>Pre-requisites/Exposure</b>					
<b>Co-requisites</b>	--				

**Course Objectives** The objective of this course is to introduce the student to labour economics with an emphasis on microeconomic theory and empirics. The material covered would help the student to understand real world issues pertaining to labour markets and also to assess related public policy measures. •

**Course Learning Outcomes** The student will learn basic economic forces behind employment and wages, sources of labour market imperfections, driving forces for education and skill upgradation, discrimination among the workers and public policies for labour welfare.

## Syllabus

Unit 1.

Labour Supply: Choice between Consumption and Leisure; Incorporating Household Production and Decisions. 2. Labour Demand and Equilibrium: Labour Demand Function, Competitive Equilibrium, Compensating Wage Differentials and Hedonic Theory of Wages

Unit 2:



Investment in Education: Theory of Human Capital, Education as a Signalling Device, Returns to Education Job Search

Unit 3:

Discrimination Theories of Discrimination, Measuring Discrimination, Affirmative Action

Unit 4

Labour Market Institutions and Policies Collective Bargaining and Labour Unions, Minimum Wage and Employment, Unemployment Insurance, Job security regulations Incentives, Agency and Efficiency Wages Migration

**Suggested Readings**

- Cahuc, P.; Carcillo, S. and Zylberberg, A. (2014): Labor Economics, MIT Press
- Ehrenberg, R. G. and Smith, R. S.(2018): Modern Labor Economics: Theory and Public Policy, Routledge
- Borjas, G. J. (2010): Labor Economics, McGraw-Hill/Irwin, Boston MA (5th edition).
- Card, D., and Ashebfelrer, O. (2011): Handbook of Labor Economics, Vol 4A & B,
- Elsevier Articles from journals and working papers.

**Examination Scheme:**

Components	Quiz I	Quiz II	Mid Term Exam	Attendance	End Term Exam
Weightage (%)	10	10	20	10	50

**Eighth Semester**

S.No	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs
1		Project & Case study	Minor	4	2	0	4	6
2		Dissertation/Research Project	Research Project	12	-	-	-	
<b>Total Credit = 16</b>								<b>5</b>
<b>Grand Total = 165</b>								
<b>B.A. (Hons with Research) in Economics with Minor Data Science</b>								

# Annexure-I

## Syllabus of Minor Data Science

### Data Analytics using SQL (Minor I-UDT101) (Theory:-2 + P:-4)

The course objective of "Data Science Using SQL" typically revolves around teaching students or participants the essential skills and knowledge needed to effectively utilize SQL (Structured Query Language) for data analysis and exploration within the context of data science. The course aims to provide a strong foundation in SQL and its application in various data-related tasks, with a focus on supporting data-driven decision-making processes.

#### CO:

Upon successful completion of the course students should be able to:

1. Write complex SQL queries to retrieve, filter, and aggregate data from relational databases.
2. Apply SQL commands to clean and pre-process data, including handling missing values, duplicates, and data transformations.
3. Utilize SQL queries to explore datasets, identify patterns, and summarize key statistics to gain initial insights into the data.
4. Visualize query results using tools or libraries to create meaningful charts, graphs, and plots that enhance data understanding.
5. Apply SQL skills to real-world data science problems in domains such as business, finance, marketing, and healthcare.

#### Course Contents:

##### Unit 1

Contact Hours: 16

- Introduction to Data Science
- Introduction To SQL Server
- Understanding Data & Information
- Database
- DBMS
- RDBMS
- DB Design
- Types of Databases
- SQL Server versions
- Creating DB
- Sub Languages of TSQL
- DDL
- DML
- TCL
- DCL
- DQL
- Creating Tables
- Insert,Delete,Update Data into Tables
- Normalization
- Constraints
- Unique
- Not Null
- Primary key
- Check
- Default

- Foreign Key

## Unit 2

Contact Hours: 22

- Working With Single Table Queries
- Writing Queries using SELECT Statement
- Understanding Query Flow
- Operators in SQL Server
- Clauses in SQL Server
- Filtering Data Using WHERE Clause
- Sorting Data using ORDER BY Clause
- Avoid Duplicates using DISTINCT Clause
- Using Top Clause
- DML Commands
- Copying Data From one Table to Another
- Insert command
- Update Command
- Delete Command
- DDL Commands
- Create command
- Alter Command
- Drop Command
- Truncate Command
- Delete vs Truncate

## Unit 3

Contact Hours: 10

- Built in Functions
- Scalar Functions
- String
- Date
- DateFromParts
- ISNULL
- Group Functions
- Aggregate Functions
- Cunt(\*)
- MAX()
- MIN()
- AVG()
- SUM()

## Unit 4

Contact Hours: 16

- Sub Queries
- Importance of Sub Query
- Types of Sub Queries
- Nested Queries
- JOINS
- Importance of Joins
- Types of Joins
- Inner Join or Equi Join
- Outer Join
- Left Outer Join

- 
- Right Outer Join

### **List of Practical's**

- Create a student table with the student id, name, and marks as attributes where the student id is the primary key.
- Insert the details of a new student in the above table
- Delete the details of a student in the above table
- Use the select command to get the details of the students with marks more than 80
- Find the min, max, sum, and average of the marks in a student marks table
- Find the total number of customers from each country in the table (customer ID, customer Name, country) using group by.
- Write a SQL query to order the (student ID, marks) table in descending order of the marks
- Write a SQL query to display the marks without decimal places, display the remainder after dividing marks by 3 and display the square of marks
- Write a SQL query to display names into capital letters, small letters, display first 3 letters of name, display last 3 letters of name, display the position the letter A in name
- Remove extra spaces from left, right and both sides from the text - " SQL for Data Science "
- Display today's date in "Date/Month/Year" format
- Display day name, month name, day, day name, day of month, day of year for today's date.

#### Reference Books

SQL: QuickStart Guide – The Simplified Beginner's Guide To SQL

### **Data Analytics using R-Software (UDT102)(2+4)**

Data Science is a fast-growing interdisciplinary field, focusing on the analysis of data to extract knowledge and insight. This course will introduce students to the collection, preparation, analysis, modeling and visualization of data, covering both conceptual and practical issues. Examples and case studies from diverse fields will be presented, and hands-on use of statistical and data manipulation software will be included.

#### **Course Objectives:**

The student will have ability to:

1. Describe R syntax, including assigning variables
2. Describe simple operations with one of R's most important data structures – vectors
3. Describe lists, matrix, arrays and data frames.
4. Describe conditional statements, functions, classes and debugging.
5. Describe important functions for character strings and dates in R.
6. Develop understanding of interpreting and identifying patterns and trends
7. Describe steps to create customized graphics and charts

#### **Course Outcomes:**

Upon completion of the subject, students will be able to:

1. Command over R programming for Data Visualization
2. Understand the processes of data science - identifying the problem to be solved, data collection, preparation, modeling, evaluation and visualization.

3. Able to use basic R data structures in loading, cleaning the data and preprocessing the data.
4. Able to do the exploratory data analysis on real time datasets
5. Able to understand and implement Linear Regression
6. Able to understand and use - lists, vectors, matrices, dataframes, etc.

Syllabus:

### **UNIT I Introduction to Data Science and Data Visualization:**

Introduction to Data Science- Introduction- Definition - Data Science in various fields - Examples - Impact of Data Science - Data Analytics Life Cycle - Data Science Toolkit - Data Scientist - Data Science Team

Understanding data: Introduction – Types of Data: Numeric – Categorical – Graphical – High Dimensional Data – Classification of digital Data: Structured, Semi-Structured and Un-Structured - Example Applications. Need for data visualization, applications of data visualization, Difference Between Data Visualization and Data Analytics, Role of Data Visualization in Artificial Intelligence, Machine Learning and Data Science. Comparison of various data visualization techniques.

### **UNIT II FUNDAMENTALS OF R**

Introduction to R- Features of R - Environment - R Studio. Basics of R-Assignment - Modes - Operators - special numbers - Logical values - Basic Functions - R help functions - R Data Structures - Control Structures. Vectors: Definition- Declaration - Generating - Indexing - Naming - Adding & Removing elements - Operations on Vectors - Recycling - Special Operators - Vectorized if- then else-Vector Equality – Functions for vectors - Missing values - NULL values - Filtering & Subsetting.

### **UNIT III:**

Matrices - Creating Matrices - Adding or Removing rows/columns - Reshaping - Operations - Special functions on Matrices. Lists - Creating List – General List Operations - Special Functions - Recursive Lists. Data Frames - Creating Data Frames - Naming - Accessing - Adding - Removing - Applying Special functions to Data Frames - Merging Data Frames- Factors and Tables.

### **WORKING WITH R**

Working with data in R - Reading CSV and Excel Files, reading text files, Writing and saving data objects to file in R, String operations in R - Regular Expressions, Dates in R, Using Visualization tools – Bar Charts, Histograms, Pie Charts, Scatter Plots, Line Plots.

Input / Output – Reading and Writing datasets in various formats - Functions - Creating User-defined functions - Functions on Function Object - Scope of Variables - Accessing Global, Environment - Closures - Recursion. Exploratory Data Analysis - Data Preprocessing - Descriptive Statistics - Central Tendency - Variability - Mean - Median - Range - Variance - Summary - Handling Missing values and Outliers - Normalization

Data Visualization in R : Types of visualizations - packages for visualizations - Basic Visualizations, Advanced Visualizations and Creating 3D plots.

## **UNIT V Data Visualization with R:**

Basic Visualization Tools-Bar Charts, Histograms, Pie Charts, Basic Visualization Tools Continued Scatter Plots, Line Plots and Regression, Specialized Visualization Tools-Word Clouds, Radar Charts, Waffle Charts, Box Plots, how to create Maps Creating Maps in R, How to build interactive web pages- Introduction to Shiny, Creating and Customizing Shiny Apps, Additional Shiny Features Hands on with ggplot2: Marginal Plots, Bubble Plots & Count Charts, Diverging Charts, Themes, Multi Panel Plots, Multiple Plots, Background Colors.

### **Text Books:**

1. Cognitive computing with IBM Watson (by Rob High (Author), Tanmay Bakshi (Author), 30 April 2019)-1st edition.

### **Reference Books:**

1. Nina Zumel, John Mount, "Practical Data Science with R", Manning Publications, 2014.
2. Jure Leskovec, Anand Rajaraman, Jeffrey D. Ullman, "Mining of Massive Datasets", Cambridge University Press, 2014.
3. Mark Gardener, "Beginning R - The Statistical Programming Language", John Wiley & Sons, Inc., 2012.
4. W. N. Venables, D. M. Smith and the R Core Team, "An Introduction to R", 2013.
5. Tony Ojeda, Sean Patrick Murphy, Benjamin Bengfort, Abhijit Dasgupta, "Practical Data Science Cookbook", Packt Publishing Ltd., 2014.
6. Nathan Yau, "Visualize This: The FlowingData Guide to Design, Visualization, and Statistics", Wiley, 2011.
7. Boris Imler, Kevin t. Smith, Alexey Yakubovich, "Professional Hadoop Solutions", Wiley, ISBN: 9788126551071, 2015.
8. R in a Nutshell: Second Edition Paperback– (23 Oct 2012) by Joseph Adler-2nd edition.
9. Applied Predictive Modeling Hardcover– (27 Apr 2018) by Max Kuhn, Kjell Johnson- 1st edition.
10. An Introduction to Statistical Learning: with Applications in R (Springer Texts in Statistics) Hardcover– (29 Sep 2017), by Gareth James, Daniela Witten, Trevor Hastie.

### **Student Activity**

Databases need to undergo pre-processing to be useful for data mining. Dirty data can cause confusion for the data mining procedure, resulting in unreliable output. Data cleaning includes smoothing noisy data, filling in missing values, identifying and removing outliers, and resolving inconsistencies.

### **RECOMMENDED CO-CURRICULAR ACTIVITIES:**

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

### **A. Measurable**

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

### **B. General**

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

### **RECOMMENDED CONTINUOUS ASSESSMENT METHODS:**

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests)
2. Closed-book and open-book tests
3. Problem-solving exercises
4. Practical assignments and laboratory reports
5. Observation of practical skills
6. Individual and group project reports like "COVID-19 Analysis", "Estimated Quarantain Period for Covid-19 Contacts", etc.
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work.

### **E BOOKS**

1. [https://web.itu.edu.tr/~tokerem/The\\_Book\\_of\\_R.pdf](https://web.itu.edu.tr/~tokerem/The_Book_of_R.pdf)

### **MOOC**

1. <https://online-learning.harvard.edu/subject/r>
2. <https://www.udemy.com/course/r-basics/>
3. <https://www.datacamp.com/courses/free-introduction-to-r>

## **List of Practicals**

### **R Programming LAB**

- 1) Installing R and R studio
- 2) Create a folder DS\_R and make it a working directory. Display the current working directory
- 3) installing the "ggplot2", "caTools", "CART" packages

- 4) load the packages "ggplot2", "caTools".
- 5) Basic operations in r
- 6) Working with Vectors:
  - Create a vector v1 with elements 1 to 20.
  - Add 2 to every element of the vector v1.
  - Divide every element in v1 by 5
  - Create a vector v2 with elements from 21 to 30. Now add v1 to v2.
- 7) Getting data into R, Basic data manipulation
- 8) Using the data present in the table given below, create a Matrix "M"

	<i>C1</i>	<i>C2</i>	<i>C3</i>	<i>C4</i>	<i>C5</i>
<i>C1</i>	0	12	13	8	20
<i>C2</i>	12	0	15	28	88
<i>C3</i>	13	15	0	6	9
<i>C4</i>	8	28	6	0	33
<i>C5</i>	20	88	9	33	0

- Find the pairs of cities with shortest distance.

9) Consider the following marks scored by the 6 students

<u>Secti</u> <u>on</u>	<u>Stude</u> <u>nt no</u>	<u>M1</u>	<u>M2</u>	<u>M3</u>
<u>A</u>	1	45	54	45
<u>A</u>	2	34	55	55
<u>A</u>	3	56	66	64
<u>B</u>	1	43	44	45
<u>B</u>	2	67	76	78
<u>B</u>	3	76	68	37

- create a data structure for the above data and store in proper positions with proper names
- display the marks and totals for all students
- Display the highest total marks in each section.
- Add a new subject and fill it with marks for 2 sections.
  
- Three people denoted by P1, P2, P3 intend to buy some rolls, buns, cakes and bread. Each of them needs these commodities in differing amounts and can buy them in two shops S1, S2. The individual prices and desired quantities of the commodities are given in the following table "demand".

	price			demand.quantity			
	S1	S2		Roll	Bun	Cake	Bread
Roll	1.5	1					
Bun	2	2.5	<b>P1</b>	6	5	3	1
Cake	5	4.5	<b>P2</b>	3	6	2	2
Bread	16	17	<b>P3</b>	3	4	3	1

- Create matrices for above information with row names and col names.



- Display the demand.quantity and price matrices
- Find the total amount to be spent by each person for their requirements in each shop
- Suggest a shop for each person to buy the products which is minimal.

10) Consider the following employee details:

employee details as follows	
emp_no:1	
name: Ram	
salary	
	basic: 10000
	hra: 2500
	da: 4000
deductions	
	pf: 1100
	tax: 200
total salary	
	gs(Gross Salary):
	ns(Net Salary)

- ☐ Create a list for the employee data and fill gross and net salary.
- ☐ Add the address to the above list
- ☐ display the employee name and address
- ☐ remove street from address
- ☐ remove address from the List.

11) Loops and functions - Find the factorial of a given number

12) Implementation of Data Frame and its corresponding operators and functions

13) Implementation of Reading data from the files and writing output back to the specified file

14) Treatment of NAs, outliers, Scaling the data, etc

15) Applying summary() to find the mean, median, standard deviation, etc

16) Implementation of Visualizations - Bar, Histogram, Box, Line, scatter plot, etc.

#### E BOOKS

1. [https://web.itu.edu.tr/~tokerem/The\\_Book\\_of\\_R.pdf](https://web.itu.edu.tr/~tokerem/The_Book_of_R.pdf)

#### MOOC

1. <https://online-learning.harvard.edu/subject/r>

2. <https://www.udemy.com/course/r-basics/>

3. <https://www.datacamp.com/courses/free-introduction-to-r>

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## **Python for Data Science (UDT103) (2+4)**

### **COURSE OUTCOMES**

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

- 1 Identify the need for data science and solve basic problems using Python built-in data types and their methods.
- 2 Employ efficient storage and data operations using NumPy arrays.
- 3 Apply powerful data manipulations using Pandas.
- 4 Do data pre-processing and visualization using Pandas.

Prerequisites: NIL

### **Unit 1: INTRODUCTION TO DATA SCIENCE AND PYTHON PROGRAMMING**

Introduction to Data Science - Why Python? - Essential Python libraries - Python Introduction- Features, Identifiers, Reserved words, Indentation, Comments, Built-in Data types and their Methods: Strings, List, Tuples, Dictionary, Set - Type Conversion- Operators. Decision Making- Looping- Loop Control statement- Math and Random number functions. User defined functions - function arguments & its types.

#### **Practical Component:**

1. Implement basic Python programs for reading input from console.
2. Perform Creation, indexing, slicing, concatenation and repetition operations on Python built-in data types: Strings, List, Tuples, Dictionary, Set
3. Solve problems using decision and looping statements.
4. Apply Python built-in data types: Strings, List, Tuples, Dictionary, Set and their methods to solve any given problem
5. Handle numerical operations using math and random number functions
6. Create user-defined functions with different types of function arguments.

### **Unit 2: INTRODUCTION TO NUMPY**

NumPy Basics: Arrays and Vectorized Computation- The NumPy ndarray- Creating ndarrays- Data Types for ndarrays- Arithmetic with NumPy Arrays- Basic Indexing and Slicing - Boolean Indexing- Transposing Arrays and Swapping Axes. Universal Functions: Fast Element-Wise Array Functions- Mathematical and Statistical Methods- Sorting Unique and Other Set Logic.

#### **Practical Component:**

1. Create NumPy arrays from Python Data Structures, Intrinsic NumPy objects and Random Functions.
2. Manipulation of NumPy arrays- Indexing, Slicing, Reshaping, Joining and Splitting.
3. Computation on NumPy arrays using Universal Functions and Mathematical methods.
4. Import a CSV file and perform various Statistical and Comparison operations on rows/columns.

5. Load an image file and do crop and flip operation using NumPy Indexing.

### **Unit 3: DATA MANIPULATION WITH PANDAS**

Introduction to pandas Data Structures: Series, DataFrame, Essential Functionality: Dropping Entries Indexing, Selection, and Filtering- Function Application and Mapping- Sorting and Ranking. Summarizing and Computing Descriptive Statistics- Unique Values, Value Counts, and Membership. Reading and Writing Data in Text Format.

#### **Practical Component:**

1. Create Pandas Series and DataFrame from various inputs.
2. Import any CSV file to Pandas DataFrame and perform the following:
  - (a) Visualize the first and last 10 records
  - (b) Get the shape, index and column details
  - (c) Select/Delete the records(rows)/columns based on conditions.
  - (d) Perform ranking and sorting operations.
  - (e) Do required statistical operations on the given columns.
  - (f) Find the count and uniqueness of the given categorical values.
  - (g) Rename single/multiple columns.

### **Unit 4: DATA CLEANING, PREPARATION AND VISUALIZATION**

Data Cleaning and Preparation: Handling Missing Data - Data Transformation: Removing Duplicates, Transforming Data Using a Function or Mapping, Replacing Values, Detecting and Filtering Outliers-String Manipulation: Vectorized String Functions in pandas. Plotting with pandas: Line Plots, Bar Plots, Histograms and Density Plots, Scatter or Point Plots.

#### **Practical Component:**

1. Import any CSV file to Pandas DataFrame and perform the following:
  - (a) Handle missing data by detecting and dropping/ filling missing values.
  - (b) Transform data using apply() and map() method.
  - (c) Detect and filter outliers.
  - (d) Perform Vectorized String operations on Pandas Series.
  - (e) Visualize data using Line Plots, Bar Plots, Histograms, Density Plots and Scatter Plots.

### **TEXT BOOKS**

1. Y. Daniel Liang, “Introduction to Programming using Python”, Pearson, 2012.
2. Wes McKinney, “Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython”, O’Reilly, 2nd Edition, 2018.
3. Jake VanderPlas, “Python Data Science Handbook: Essential Tools for Working with Data”, O’Reilly, 2017.

### **REFERENCE BOOKS**

1. Wesley J. Chun, “Core Python Programming”, Prentice Hall, 2006.
2. Mark Lutz, “Learning Python”, O’Reilly, 4th Edition, 2009.

## E BOOKS

1. <https://www.programmer-books.com/introducing-data-science-pdf/>
2. <https://www.cs.uky.edu/~keen/115/Haltermanpythonbook.pdf>
3. [http://math.ecnu.edu.cn/~lfzhou/seminar/\[Joel\\_Grus\]\\_Data\\_Science\\_from\\_Scratch\\_First\\_Princ.pdf](http://math.ecnu.edu.cn/~lfzhou/seminar/[Joel_Grus]_Data_Science_from_Scratch_First_Princ.pdf)

## MOOC

1. <https://www.edx.org/course/python-basics-for-data-science>
2. <https://www.edx.org/course/analyzing-data-with-python>
3. <https://www.coursera.org/learn/python-plotting?specialization=data-science-python>

## **Data Pre-processing and Visualization using Python (UDT104) (2+4)**

### **Course Description**

Data Handling and Visualization course deals with Data visualization, implementation, and principles of proportions

### **Course Objective**

1. To explain the basics of Data Visualization
2. To enable students to Implement visualization of distributions
3. To make students to write programs on visualization of time series, proportions & associations
4. To make students to apply visualization on Trends and uncertainty
5. To enable students, understand the principles of proportions

### **Course Outcome**

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

CO1. Understand the significance of data preprocessing in data analysis and machine learning, and be able to articulate its impact on the quality of results.

CO2. Identify and handle missing data, duplicates, and outliers to ensure the data is clean and ready for analysis.

CO3. Perform data transformation: normalizing, scaling, and encoding data to bring it to a consistent format and enable better comparisons.

CO 4. able to use various statistical and visual methods to summarize and explore the data, gaining insights into its distribution, correlations, and patterns.

CO 5. Visualize data effectively: Students should be proficient in using Python libraries like Matplotlib, Seaborn, and Plotly to create various types of visualizations, including histograms, box plots, scatter plots, heatmaps, and more.

CO 6. able to communicate their results effectively through presentations or reports, explaining the data preprocessing steps taken and the insights gained from the visualizations (i.e., able to present finding and insights of real data).

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**Prerequisites: Nil****1. Introduction to Data Preprocessing**

Understanding the importance of data preprocessing

Steps involved in data preprocessing

Handling missing data

Dealing with outliers

**2. Data Cleaning and Transformation**

Removing duplicates

Data normalization and scaling

Data encoding (e.g., one-hot encoding, label encoding)

Handling categorical variables

**3 Exploratory Data Analysis (EDA)**

Data summarization and descriptive statistics

Data visualization techniques (e.g., histograms, box plots, scatter plots)

Correlation analysis

Heatmaps and pair plots

**4. Data Visualization Libraries**

Introduction to popular Python libraries (e.g., Matplotlib, Seaborn, Plotly)

Creating basic plots and customizing visuals

Interactive visualizations

**4. Data Preprocessing for Machine Learning**

Feature engineering and selection

Handling imbalanced data

Data splitting (train-test split, cross-validation)

**5. Integrating Data Preprocessing and Visualization in Python**

Applying data preprocessing techniques to real-world datasets

Visualizing data after preprocessing

## 6. Project Work

Applying data preprocessing and visualization techniques to a specific dataset

Presenting findings and insights

## E BOOKS

1. <https://www.netquest.com/hubfs/docs/ebook-data-visualization-EN.pdf>

## MOOC

1. <https://www.coursera.org/learn/data-visualization>
2. <https://www.coursera.org/learn/python-for-data-visualization>

## Practical Content

**Prerequisite:** Python Basics

### LIST OF EXPERIMENTS:

1. Importing data from various sources (CSV, Excel, SQL).
2. Handling missing data: identifying and imputing missing values.
3. Data cleaning: removing duplicates and handling outliers.
4. Data normalization and scaling techniques.
5. Handling categorical data: encoding categorical variables (Label Encoding, One-Hot Encoding).
6. Feature engineering: creating new features, feature selection.
7. Descriptive statistics and summary metrics.
8. Data visualization with Matplotlib and Seaborn.
9. Customizing plots using Matplotlib and Seaborn.
10. Creating interactive visualizations with Plotly.
11. Aggregating data using Pandas.
12. Grouping data based on categories.
13. Pivot tables and cross-tabulation.

### Project (Data Visualization Case Study)

- Visualizing real-world datasets.
- Applying data pre-processing and visualization techniques to a new dataset.
- Creating meaningful and insightful visualizations using Matplotlib, Seaborn, and Plotly.
- Presenting findings and insights.

## REFERENCE BOOKS

1. Claus Wilke, “Fundamentals of Data Visualization: A Primer on Making Informative and Compelling Figures”, 1st edition, O’Reilly Media Inc, 2019.
2. Data Wrangling with Python by Jacqueline Kazil and Katharine Jarmul.

<https://www.datacamp.com/>

<https://towardsdatascience.com/>

<https://seaborn.pydata.org/>

## **Time series analysis and forecasting using Python (UDT105)(3+2)**

### **Unit 1: INTRODUCTION OF TIMESERIES ANALYSIS:**

Introduction to Time Series and Forecasting, Different types of data, Internal structures of time series. Models for time series analysis, Autocorrelation and Partial autocorrelation. Examples of Time series Nature and uses of forecasting, Forecasting Process, Data for forecasting, Resources for forecasting.

### **Unit 2: STATISTICS BACKGROUND FOR FORECASTING:**

Graphical Displays, Time Series Plots, Plotting Smoothed Data, Numerical Description of Time Series Data, Use of Data Transformations and Adjustments, General Approach to Time Series Modeling and Forecasting, Evaluating and Monitoring Forecasting Model Performance.

### **Unit 3: TIME SERIES REGRESSION MODEL:**

Introduction Least Squares Estimation in Linear Regression Models, Statistical Inference in Linear Regression, Prediction of New Observations, Model Adequacy Checking, Variable Selection Methods in Regression, Generalized and Weighted Least Squares, Regression Models for General Time Series Data, Exponential Smoothing, First order and Second order.

### **Unit 4 AUTOREGRESSIVE INTEGRATED MOVING AVERAGE (ARIMA) MODELS:**

Autoregressive Moving Average (ARMA) Models - Stationarity and Invertibility of ARMA Models - Checking for Stationarity using Variogram- Detecting Nonstationarity - Autoregressive Integrated Moving Average (ARIMA) Models - Forecasting using ARIMA - Seasonal Data - Seasonal ARIMA Models Forecasting using Seasonal ARIMA Models Introduction - Finding the “BEST” Model - Example: Internet Users Data Model Selection Criteria - Impulse Response Function to Study the Differences in Models Comparing Impulse Response Functions for Competing Models .

### **TEXTBOOKS:**

**1. Introduction To Time Series Analysis And Forecasting**, 2nd Edition, Wiley Series In Probability And Statistics, By Douglas C. Montgomery, Cheryl L. Jen(2015)

**2. Master Time Series Data Processing, Visualization, And Modeling Using Python** Dr. Avishek Pal Dr. Pks Prakash (2017)

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## **LAB**

1 Task to perform on Time Series data

- Time Series Data Cleaning
- Loading and Handling Times series data
- Preprocessing Techniques

2 How to Check Stationarity of a Time Series. How to make a Time Series Stationary? Estimating & Eliminating Trend.

- Aggregation
- Smoothing
- Polynomial Fitting Eliminating Trend and Seasonality
- Differencing
- Decomposition

3 a) Moving Average time analysis data.

b) Smoothing the Time analysis Data.

c) Check out the Time series Linear and non-linear trends.

d) Create a modelling.

4 Modelling time series

- Moving average
- Exponential smoothing
- ARIMA Seasonal autoregressive integrated moving average model (SARIMA)

## **Fundamentals of Machine Learning (UDT106) (2+4)**

### **Course Objective:**

1. To introduce students to the basic concepts and techniques of Machine Learning.
- 2: To develop skills of using recent machine learning software for solving practical problems.
- 3: To gain experience of doing independent study and research.
- 4: Ability to identify the characteristics of datasets and compare the trivial data and big data for various applications.

### **Learning Outcome:**



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Upon successful completion of the course the student will be able to:

1. Ability to select and implement machine learning techniques and computing environment that are suitable for the applications under consideration.
2. Ability to solve problems associated with batch learning and online learning, and the big data characteristics such as high dimensionality, dynamically growing data and in particular scalability issues.
3. Ability to understand and apply scaling up machine learning techniques and associated computing techniques and technologies.
4. Ability to recognize and implement various ways of selecting suitable model parameters for different machine learning techniques

### **Course Contents:**

#### **Unit I INTRODUCTION TO MACHINE LEARNING:**

Application of Machine Learning, Supervised vs Unsupervised Learning, Python libraries suitable for Machine Learning

#### **II DATA PRE-PROCESSING AND DATA**

- Identifying and handling the missing values
- Encoding the categorical data
- Normalization
- Standardization
- PCA

#### **III SUPERVISED LEARNING REGRESSION AND CLASSIFICATION:**

Linear Regression, Non-Linear Regression, Model evaluation methods, K-Nearest Neighbour, Decision Tree, Logistic Regression, Support Vector Machines, Model Evaluation

#### **IV Unsupervised Learning:**

K-means Clustering, Hierarchical Clustering, Density-Based Clustering

### **Suggested Readings:**

1. Machine Learning - Tom M. Mitchell
2. Python Machine Learning – Sebastian, Raschka and Vahid Mirjalili

3. Hands-On Machine Learning with Scikit-Learn and TensorFlow: Concepts, Tools, and Technique to Build Intelligent Systems - AurélienGéron

4. Understanding Machine Learning - Shai Shalev-Shwartz and Shai Ben-David La

## **Data driven Applications (UDT107) (2+4)**

### **Unit 1 : INTRODUCTION TO POWER BI**

• Introduction to Power BI - Need, Importance • Power BI - Advantages and Scalable Options • History - Power View, Power Query, Power Pivot • Power BI Data Source Library and DW Files • Cloud Collaboration and Usage Scope • Business Analyst Tools, MS Cloud Tools • Power BI Installation and Cloud Account • Power BI Cloud and Power BI Service • Power BI Architecture and Data Access • OnPremise Data Access and Microsoft On Drive • Power BI Desktop - Installation, Usage • Sample Reports and Visualization Controls • Power BI Cloud Account Configuration • Understanding Desktop & Mobile Editions • Report Rendering Options and End User Access • Power View and Power Map. Power BI Licenses • Course Plan - Power BI Online Training

### **Unit 2 : CREATING POWER BI REPORTS, AUTO FILTERS**

• Report Design with Legacy & .DAT Files • Report Design with Database Tables • Understanding Power BI Report Designer • Report Canvas, Report Pages: Creation, Renames • Report Visuals, Fields and UI Options • Experimenting Visual Interactions, Advantages • Reports with Multiple Pages and Advantages • Pages with Multiple Visualizations. Data Access • PUBLISH Options and Report Verification in Cloud • "GET DATA" Options and Report Fields, Filters • Report View Options: Full, Fit Page, Width Scale • Report Design using Databases & Queries • Query Settings and Data Preloads • Navigation Options and Report Refresh • Stacked bar chart, Stacked column chart • Clustered bar chart, Clustered column chart • Adding Report Titles. Report Format Options • Focus Mode, Explore and Export Settings

### **Unit 3 : REPORT VISUALIZATIONS and PROPERTIES**

• Power BI Design: Canvas, Visualizations and Fields • Import Data Options with Power BI Model, Advantages • Direct Query Options and Real-time (LIVE) Data Access • Data Fields and Filters with Visualizations • Visualization Filters, Page Filters, Report Filters • Conditional Filters and Clearing. Testing Sets • Creating Customised Tables with Power BI Editor • General Properties, Sizing, Dimensions, and Positions • Alternate Text and Tiles. Header (Column, Row) Properties • Grid Properties (Vertical, Horizontal) and Styles • Table Styles & Alternate Row Colors - Static, Dynamic • Sparse, Flashy Rows, Condensed Table Reports. Focus Mode • Totals Computations, Background. Borders Properties • Column Headers, Column Formatting, Value Properties • Conditional Formatting Options - Color Scale • Page Level Filters and Report Level Filters • Visual-Level Filters and Format Options • Report Fields, Formats and Analytics • Page-Level Filters and Column Formatting, Filters • Background Properties, Borders and Lock Aspect

### **Unit 4: CHART AND MAP REPORT PROPERTIES**

• Chart report types and properties • stacked bar chart, stacked column chart clustered bar chart, clustered column chart • 100% stacked bar chart, 100% stacked column chart • line charts, area charts, stacked area charts • line and stacked row charts • line and stacked column charts • waterfall chart, scatter chart, pie chart • Field Properties: Axis, Legend, Value, Tooltip • Field Properties: Color Saturation, Filters Types • Formats: Legend, Axis, Data Labels, Plot Area • Data Labels: Visibility, Color and Display Units • Data Labels: Precision,

Position, Text Options • Analytics: Constant Line, Position, Labels • Working with Waterfall Charts and Default Values • Modifying Legends and Visual Filters - Options • Map Reports: Working with Map Reports.

### **Text Books**

1. "Beginning Power BI: A Practical Guide to Self-Service Data Analytics with Excel 2016 and Power BI Desktop" by Dan Clark
2. "Power BI Step-by-Step Part 1: Up and Running: Power BI Mastery through hands-on Tutorials (Power BI Step by Step)" by Grant Gamble
3. "Mastering Microsoft Power BI" by Brett Powell

### **Links**

<https://learn.microsoft.com/en-us/power-bi/>

<https://docs.microsoft.com/en-us/power-bi/guided-learning/>

<https://docs.microsoft.com/en-us/learn/paths/analyze-visualize-data-power-bi/>

### **Project and Case Study (UDT108)**

## Annexure 2

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

S.No	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs.
1		Micro Economics-I	Major (DSC)	4	3	1	0	4
2		Macro Economics-I	Major (DSC)	4	3	1	0	4
3		Mathematical methods for Economics-I	Major DSC	4	3	1	0	4
4		Minor 1	Minor	4	2	0	4	6
5		VAC 1 (EVS & DM)	VAC	2	2	0	0	1
6		AEC-2	AEC	3	3	0	0	3
7		SEC 1	SEC	2	1	0	2	3
<b>Total Credit = 23</b>								<b>25</b>

### Second Semester

S.No	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs.
1		Micro Economics- II	Major DSC	4	3	1	0	4
2		Macro Economics- II	Major (DSC)	4	3	1	0	4
3		Mathematical methods for Economics-II	Major DSC	4	3	1	0	4
4		Minor 2	Minor	4	2	0	4	6
5		VAC 2 (Extension & Outreach Based)	VAC	2	-	-	-	-
6		1 from pool of University	OE	3	3	0	0	3
7		AEC-2	AEC	3	3	0	0	3
<b>Total Credit = 24</b>								<b>24</b>
<b>Undergraduate Certificate in Economics (Total Credit =47)</b>								
<b>Summer Internship (2 Credit)</b>								

### Third Semester

S.NO	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs
1		Economics of Growth & Development-I	Major DSC	4	3	1	0	4
2		Statistical Methods for Economics	Major (DSC)	4	3	1	0	4
3		Statistical Methods for Economics- Practical	Major DSC	1	0	0	1	2
4		Minor 3	Minor	4	2	0	4	6
5		VAC 3 from pool of University	VAC	2	2	0	0	2
6		1 from pool of University (Inter-Disciplinary)	OE	3	3	0	0	3
7		AEC 3	AEC	3	3	0	0	3
8		Evaluation of Summer Internship		2	-	-	-	
<b>Total Credit = 23</b>								<b>24</b>

### Fourth Semester

S.No	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs
1		Economics of Growth & Development-II	Major DSC	4	3	1	0	4
2		Basic Econometrics	Major DSC	4	3	1	0	4
3		Econometrics Laboratory	Major DSC	1	0	0	1	1
4		DSE 1	Major (DSE)	4	3	1	0	4
5		Minor 4	Minor	4	2	0	4	6
6		1 from pool of University (Inter-Disciplinary)	OE	3	3	0	0	3
7		VAC 4 from pool of University	VAC	2	2	0	0	2

8		SEC 2	SEC	2	1	0	2	3
Total = 24								<b>27</b>
<b>Undergraduate Diploma in Economics (Total Credit = 93)</b>								
Summer Internship = 2 Credit								

### Fifth Semester

S.NO	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs
1		Public Finance	Major (DSC)	4	3	1	0	4
2		Minor 5	Minor	4	2	0	4	6
3		DSE 2	Major DSE	4	3	1	0	4
4		DSE 3	Major DSE	4	3	1	0	4
5		SEC 3	SEC	2	2	0	0	2
6		Evaluation of Summer Internship		2	-	-	-	-
<b>Total Credit = 20</b>								<b>20</b>

### Sixth Semester

S.NO	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs
1		Indian Economy	Major DSC	4	3	1	0	4
2		History of Economic Ideas	Major (DSC)	4	3	1	0	4
3		Data Analysis of Indian Economy-Practical	Major DSC	1	0	0	1	2
4		Minor 6	Minor	4	2	0	4	6
5		DSE 4	Major DSE	4	3	1	0	4
6		SEC 4	SEC	2	2	0	0	2
<b>Total Credit = 19</b>								<b>22</b>

**Bachelors of Arts in Economics (Total Credit = 133)**

**Seventh Semester**

S.No	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs
1		Research Methodology for Economics	Major DSC	4	3	1	0	4
2		International Trade & Finance	Major DSC	4	3	1	0	4
3		Minor 7	Minor	4	2	0	4	6
4		DSE 5	Major DSE	4	3	1	0	4
<b>Total Credit = 16</b>								<b>18</b>

**Eighth Semester**

S.No	Course Code	Course Name	Category of Course	Credit	L	T	P	Hrs
1		Minor 8	Minor	4	2	0	4	6
2		Dissertation/Research Project	Research Project	12	-	-	-	
<b>Total Credit = 16</b>								<b>5</b>
<b>Grand Total = 165</b>								
<b>B.A. (Hons with Research) in Economics with Minor Data Science</b>								

**List of Minor Subjects**

<b>1. Data Sciences</b>	UDT	I	Data Analytics Using SQL	UDT101
		II	Data Analytics Using R	UDT102
		III	Python For Data Science	UDT103
		IV	Data Preprocessing And Visualization Using Python	UDT104

	V	Time Series Analysis & Forecasting Using Python	UDT105
	VI	Fundamental Of Machine Learning	UDT106
	VII	Data Driven Applications	UDT107
	VIII	Project And Case Study	UDT108

<b>2. Media Studies</b>	UMS	I	Understanding Media	UMS101
		II	Media Ethics and Laws	UMS102
		III	Reporting and Editing for Print	UMS103
		IV	Advertising and Integrated Marketing Communication	UMS104
		V	Public Relation and Corporate Communication	UMS105
		VI	Media, Development and Society	UMS106
		VII	Film Appreciation and Cinema Studies	UMS107
		VIII	Global Media Scenario	UMS108

<b>3.Education</b>	UED	I	Foundations of Education	UED101
		II	Educational Psychology	UED102
		III	Measurement and Evaluation of Learner	UED103
		IV	Diversity and Inclusive Education	UED104
		V	Guidance and Counseling	UED105
		VI	Applied Behaviour Analysis in Education	UED106
		VII	Educational Intervention and Teaching Strategies : Intellectual Disability	UED107
		VIII	Educational Intervention and Teaching Strategies : Learning Disability	UED108

<b>4.Human Resource</b>	UHR	I	Foundations in Organizational Behaviour	UHR101
		II	Professional HRM Practices	UHR102



<b>Management</b>		III	Psychological Assessment in Organizations	UHR103
		IV	Learning and Development in Organizations	UHR104
		V	Leadership and Talent Development	UHR105
		VI	Counseling at Workplace	UHR106
		VII	Change Management and OD Interventions	UHR107
		VIII	Total Rewards Management	UHR108

<b>5.Foreign Trade</b>	UFT	I	Basics of Business	UFT101
		II	The Global Economy	UFT102
		III	International Business Environment	UFT103
		IV	Macroeconomics of open economies	UFT104
		V	Global Political Economy	UFT105
		VI	Growth Inequality and Conflict	UFT106
		VII	Foreign Trade	UFT107
		VIII	International Financial Institutions	UFT108

<b>6. Psychology</b>	UPS	I	Foundations of Psychology	UPS101
		II	Fundamentals of Social Psychology	UPS102
		III	Developmental Psychology	UPS103
		IV	Counseling and Guidance	UPS104
		V	Health Psychology	UPS105
		VI	Environmental Psychology	UPS106
		VII	Positive Psychology	UPS107
		VII	Media Psychology	UPS108

## Annexure 3

### TEACHING PLAN

#### MICROECONOMICS 1

Weekly Teaching Plan	Topic/Unit No.	Textbook [TB]/ Reference Book [RB]- Chapter/ Page No./ Open Education Resources [OER]	Teaching-Learning Method
Week 1	Unit 1	<ul style="list-style-type: none"> <li>• Ahuja,H.L.,Advanced Micro Economics, S. Chand &amp; Company Ltd.</li> <li>• Koutsoyiannis, A. (1979), Modern Microeconomics.</li> <li>• SWAYAM, ePathshala</li> </ul>	<b>Lecture Based,Classroom Discussion</b>
Week 2	Unit 1	<ul style="list-style-type: none"> <li>• Ahuja,H.L.,Advanced Micro Economics, S. Chand &amp; Company Ltd.</li> <li>• Koutsoyiannis, A. (1979), Modern Microeconomics.</li> <li>• SWAYAM, ePathshala</li> </ul>	<b>Classroom Discussion</b>
Week 3	Unit 2	<ul style="list-style-type: none"> <li>• Ahuja,H.L.,Advanced Micro Economics, S. Chand &amp; Company Ltd.</li> <li>• Koutsoyiannis, A. (1979), Modern Microeconomics, (2nd Edition), Macmillan Press, London.</li> <li>• SWAYAM, ePathshala</li> </ul>	<b>Classroom Discussion, Presentation</b>
Week 4	Unit 2	<ul style="list-style-type: none"> <li>• Ahuja,H.L.,Advanced Micro Economics, S. Chand &amp; Company Ltd.</li> <li>• Koutsoyiannis, A. (1979), Modern Microeconomics.</li> <li>• SWAYAM, ePathshala</li> </ul>	<b>Problem solving, Lecture based</b>
Week 5	Unit 3	<ul style="list-style-type: none"> <li>• Ahuja,H.L.,Advanced Micro Economics, S. Chand &amp; Company Ltd.</li> <li>• Koutsoyiannis, A. (1979), Modern Microeconomics.</li> <li>• SWAYAM, ePathshala</li> </ul>	<b>Lecture based, Classroom Discussion</b>
Week 6	Unit 3	<ul style="list-style-type: none"> <li>• Ahuja,H.L.,Advanced Micro Economics, S. Chand &amp; Company Ltd.</li> <li>• Koutsoyiannis, A. (1979), Modern Microeconomics.</li> <li>• SWAYAM, ePathshala</li> </ul>	<b>Classroom Discussion, Presentation</b>
Week 7	Unit 4	<ul style="list-style-type: none"> <li>• Ahuja,H.L.,Advanced Micro Economics, S. Chand &amp; Company Ltd.</li> <li>• Koutsoyiannis, A. (1979), Modern Microeconomics.</li> <li>• SWAYAM, ePathshala</li> </ul>	<b>Lecture based, Classroom Discussion</b>

Week 8	Unit 4	<ul style="list-style-type: none"> <li>Ahuja, H.L., Advanced Micro Economics, S. Chand &amp; Company Ltd.</li> <li>Koutsoyiannis, A. (1979), Modern Microeconomics.</li> </ul>	Lecture based, Classroom Discussion
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### Macroeconomic 1

Weekly Teaching Plan	Topic/Unit No.	Textbook [TB]/ Reference Book [RB]- Chapter/ Page No./ Open Education Resources [OER]	Teaching-Learning Method
Week 1	Unit 1	<ul style="list-style-type: none"> <li>Ahuja, H.L., — Macro Economics Theory and Policy.</li> <li>Dwiwedi, D.N. —Macro Economics.</li> <li>ePathshala, NDL, echarya</li> </ul>	Lecture Based, Classroom Discussion
Week 2	Unit 1	<ul style="list-style-type: none"> <li>Ahuja, H.L., — Macro Economics Theory and Policy.</li> <li>Dwiwedi, D.N. —Macro Economics.</li> <li>ePathshala, NDL, echarya</li> </ul>	Classroom Discussion
Week 3	Unit 2	<ul style="list-style-type: none"> <li>Ahuja, H.L., — Macro Economics Theory and Policy.</li> <li>Dwiwedi, D.N. —Macro Economics.</li> <li>ePathshala, NDL, echarya</li> </ul>	Classroom Discussion, Presentation
Week 4	Unit 2	<ul style="list-style-type: none"> <li>Ahuja, H.L., — Macro Economics Theory and Policy.</li> <li>Dwiwedi, D.N. —Macro Economics.</li> <li>ePathshala, NDL, echarya</li> </ul>	Problem solving, Lecture based
Week 5	Unit 3	<ul style="list-style-type: none"> <li>Ahuja, H.L., — Macro Economics Theory and Policy.</li> <li>Dwiwedi, D.N. —Macro Economics.</li> <li>ePathshala, NDL, echarya</li> </ul>	Lecture based, Classroom Discussion
Week 6	Unit 3	<ul style="list-style-type: none"> <li>Ahuja, H.L., — Macro Economics Theory and Policy.</li> <li>Dwiwedi, D.N. —Macro Economics.</li> <li>ePathshala, NDL, echarya</li> </ul>	Classroom Discussion, Presentation
Week 7	Unit 4	<ul style="list-style-type: none"> <li>Ahuja, H.L., — Macro Economics Theory and Policy.</li> <li>Dwiwedi, D.N. —Macro Economics.</li> <li>ePathshala, NDL, echarya</li> </ul>	Presentation
Week 8	Unit 4	<ul style="list-style-type: none"> <li>Ahuja, H.L., — Macro Economics Theory and Policy.</li> <li>Dwiwedi, D.N. —Macro Economics.</li> </ul>	Classroom Discussion

**Microeconomics II**

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Weekly Teaching Plan	Topic/Unit No.	Textbook [TB]/ Reference Book [RB]- Chapter/ Page No./ Open Education Resources [OER]	Teaching-Learning Method
Week 1	Unit 1	<ul style="list-style-type: none"> <li>Ahuja,H.L.,Advanced Micro Economics, S. Chand &amp; Company Ltd.</li> <li>Mankiw, Principles of economics</li> <li>SWAYAM, ePathshala</li> </ul>	<b>Lecture Based,Classroom Discussion</b>
Week 2	Unit 1	<ul style="list-style-type: none"> <li>Ahuja,H.L.,Advanced Micro Economics, S. Chand &amp; Company Ltd.</li> <li>Mankiw, Principles of economics</li> <li>SWAYAM, ePathshala</li> </ul>	<b>Classroom Discussion</b>
Week 3	Unit 2	<ul style="list-style-type: none"> <li>Ahuja,H.L.,Advanced Micro Economics, S. Chand &amp; Company Ltd.</li> <li>Mankiw, Principles of economics</li> <li>SWAYAM, ePathshala</li> </ul>	<b>Classroom Discussion, Presentation</b>
Week 4	Unit 2	<ul style="list-style-type: none"> <li>Ahuja,H.L.,Advanced Micro Economics, S. Chand &amp; Company Ltd.</li> <li>Mankiw, Principles of economics</li> <li>SWAYAM, ePathshala</li> </ul>	<b>Problem solving, Lecture based</b>
Week 5	Unit 3	<ul style="list-style-type: none"> <li>Ahuja,H.L.,Advanced Micro Economics, S. Chand &amp; Company Ltd.</li> <li>Mankiw, Principles of economics</li> <li>SWAYAM, ePathshala</li> </ul>	<b>Lecture based, Classroom Discussion</b>
Week 6	Unit 3	<ul style="list-style-type: none"> <li>Ahuja,H.L.,Advanced Micro Economics, S. Chand &amp; Company Ltd.</li> <li>Mankiw, Principles of economics</li> <li>SWAYAM, ePathshala</li> </ul>	<b>Classroom Discussion, Presentation</b>
Week 7	Unit 4	<ul style="list-style-type: none"> <li>Ahuja,H.L.,Advanced Micro Economics, S. Chand &amp; Company Ltd.</li> <li>Mankiw, Principles of economics</li> <li>SWAYAM, ePathshala</li> </ul>	<b>Lecture based, Classroom Discussion</b>
Week 8	Unit 4	<ul style="list-style-type: none"> <li>Ahuja,H.L.,Advanced Micro Economics, S. Chand &amp; Company Ltd.</li> <li>Mankiw, Principles of economics</li> <li>.SWAYAM</li> </ul>	<b>Lecture based, Classroom Discussion</b>

		[RB]-Chapter/ Page No./ Open Education Resources [OER]	
<b>Week 1</b>	<b>Unit 1</b>	<ul style="list-style-type: none"> <li>• Ahuja,H.L.,— Macro Economics Theory and Policy.</li> <li>• Dwiwedi, D.N. —Macro Economics.</li> <li>• ePathshala, NDL, echarya</li> </ul>	<b>Lecture Based,Classroom Discussion</b>
<b>Week 2</b>	<b>Unit 1</b>	<ul style="list-style-type: none"> <li>• Ahuja,H.L.,— Macro Economics Theory and Policy.</li> <li>• Dwiwedi, D.N. —Macro Economics.</li> <li>• ePathshala, NDL, echarya</li> </ul>	<b>Classroom Discussion</b>
<b>Week 3</b>	<b>Unit 2</b>	<ul style="list-style-type: none"> <li>• Ahuja,H.L.,— Macro Economics Theory and Policy.</li> <li>• Dwiwedi, D.N. —Macro Economics.</li> <li>• ePathshala, NDL, echarya</li> </ul>	<b>Classroom Discussion, Presentation</b>
<b>Week 4</b>	<b>Unit 2</b>	<ul style="list-style-type: none"> <li>• Ahuja,H.L.,— Macro Economics Theory and Policy.</li> <li>• Dwiwedi, D.N. —Macro Economics.</li> <li>• ePathshala, NDL, echarya</li> </ul>	<b>Problem solving, Lecture based</b>
<b>Week 5</b>	<b>Unit 3</b>	<ul style="list-style-type: none"> <li>• Ahuja,H.L.,— Macro Economics Theory and Policy.</li> <li>• Dwiwedi, D.N. —Macro Economics.</li> <li>• ePathshala, NDL, echarya</li> </ul>	<b>Lecture based, Classroom Discussion</b>
<b>Week 6</b>	<b>Unit 3</b>	<ul style="list-style-type: none"> <li>• Ahuja,H.L.,— Macro Economics Theory and Policy.</li> <li>• Dwiwedi, D.N. —Macro Economics.</li> <li>• ePathshala, NDL, echarya</li> </ul>	<b>Classroom Discussion, Presentation</b>
<b>Week 7</b>	<b>Unit 4</b>	<ul style="list-style-type: none"> <li>• Ahuja,H.L.,— Macro Economics Theory and Policy.</li> <li>• Dwiwedi, D.N. —Macro Economics.</li> <li>• ePathshala, NDL, echarya</li> </ul>	<b>Presentation</b>
<b>Week 8</b>	<b>Unit 4</b>	<ul style="list-style-type: none"> <li>• Ahuja,H.L.,— Macro Economics Theory and Policy.</li> <li>• Dwiwedi, D.N. —Macro Economics.</li> <li>• ePathshala, NDL, echarya</li> </ul>	<b>Classroom Discussion</b>

### Mathematical Methods of Economics I

Weekly Teaching Plan	Topic/Unit No.	Textbook [TB]/ Reference Book [RB]-Chapter/ Page No./ Open Education Resources [OER]	Teaching-Learning Method
Week 1	Unit 1	<ul style="list-style-type: none"> <li>• Sydsaeter, K., Hammond, P. (2002). <i>Mathematics for economic analysis</i>.</li> <li>• Chiang, A. C. (1986) <i>Fundamental Methods of Mathematical Economics</i>..</li> <li>• ePathshala, NDL, SWAYAM</li> </ul>	<b>Lecture Based, Classroom Discussion</b>
Week 2	Unit 1	<ul style="list-style-type: none"> <li>• Sydsaeter, K., Hammond, P. (2002). <i>Mathematics for economic analysis</i>.</li> <li>• Chiang, A. C. (1986) <i>Fundamental Methods of Mathematical Economics</i>..</li> <li>• ePathshala, NDL, SWAYAM</li> </ul>	<b>Classroom Discussion</b>
Week 3	Unit 2	<ul style="list-style-type: none"> <li>• Sydsaeter, K., Hammond, P. (2002). <i>Mathematics for economic analysis</i>.</li> <li>• Chiang, A. C. (1986) <i>Fundamental Methods of Mathematical Economics</i>..</li> <li>• ePathshala, NDL, SWAYAM</li> </ul>	<b>Classroom Discussion, Presentation</b>
Week 4	Unit 2	<ul style="list-style-type: none"> <li>• Sydsaeter, K., Hammond, P. (2002). <i>Mathematics for economic analysis</i>.</li> <li>• Chiang, A. C. (1986) <i>Fundamental Methods of Mathematical Economics</i>..</li> <li>• ePathshala, NDL, SWAYAM</li> </ul>	<b>Problem solving, Lecture based</b>
Week 5	Unit 3	<ul style="list-style-type: none"> <li>• Sydsaeter, K., Hammond, P. (2002). <i>Mathematics for economic analysis</i>.</li> <li>• Chiang, A. C. (1986) <i>Fundamental Methods of Mathematical Economics</i>..</li> <li>• ePathshala, NDL, SWAYAM</li> </ul>	<b>Lecture based, Classroom Discussion</b>
Week 6	Unit 3	<ul style="list-style-type: none"> <li>• Sydsaeter, K., Hammond, P. (2002). <i>Mathematics for economic analysis</i>.</li> <li>• Chiang, A. C. (1986) <i>Fundamental Methods of Mathematical Economics</i>..</li> <li>• ePathshala, NDL, SWAYAM</li> </ul>	<b>Classroom Discussion, Presentation</b>
Week 7	Unit 4	<ul style="list-style-type: none"> <li>• Sydsaeter, K., Hammond, P. (2002). <i>Mathematics for economic analysis</i>.</li> <li>• Chiang, A. C. (1986) <i>Fundamental Methods of Mathematical Economics</i>..</li> <li>• ePathshala, NDL, SWAYAM</li> </ul>	<b>Lecture based, Classroom Discussion</b>

<b>Week 8</b>	<b>Unit 4</b>	<ul style="list-style-type: none"> <li>• Sydsaeter, K., Hammond, P. (2002). <i>Mathematics for economic analysis.</i></li> <li>• Chiang, A. C. (1986) <i>Fundamental Methods of Mathematical Economics..</i></li> <li>• ePathshala, NDL, SWAYAM</li> </ul>	<b>Lecture based, Classroom Discussion</b>
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**Module I**

<b>Weekly Teaching Plan</b>	<b>Topic/Unit No.</b>	<b>Textbook [TB]/ Reference Book [RB]-Chapter/ Page No./ Open Education Resources [OER]</b>	<b>Teaching-Learning Method</b>
<b>Week 1</b>	<b>Unit 1</b>	Jhingan M.L., —The Economics of Development and Planning, Mishra, S. K. & Economics of Development and Planning, OER - ePathshala	<b>Lecture Based, Classroom Discussion</b>
<b>Week 2</b>	<b>Unit 1</b>	Jhingan M.L., —The Economics of Development and Planning, Mishra, S. K. & Economics of Development and Planning, OER - ePathshala	<b>Classroom Discussion</b>
<b>Week 3</b>	<b>Unit 2</b>	Jhingan M.L., —The Economics of Development and Planning, Mishra, S. K. & Economics of Development and Planning, OER - ePathshala	<b>Classroom Discussion, Presentation</b>
<b>Week 4</b>	<b>Unit 2</b>	Jhingan M.L., —The Economics of Development and Planning, Mishra, S. K. & Economics of Development and Planning, OER - ePathshala	<b>Problem solving, Lecture based</b>
<b>Week 5</b>	<b>Unit 3</b>	Jhingan M.L., —The Economics of Development and Planning, Mishra, S. K. & Economics of Development and Planning, OER - ePathshala	<b>Lecture based, Classroom Discussion</b>
<b>Week 6</b>	<b>Unit 3</b>	Jhingan M.L., —The Economics of Development and Planning, Mishra, S. K. & Economics of Development and Planning, OER - ePathshala	<b>Classroom Discussion, Presentation</b>
<b>Week 7</b>	<b>Unit 4</b>	Jhingan M.L., —The Economics of Development and Planning, Mishra, S. K. & Economics of Development and Planning, OER - ePathshala	<b>Lecture based, Classroom Discussion</b>
<b>Week 8</b>	<b>Unit 4</b>	Jhingan M.L., —The Economics of Development and Planning, Mishra, S. K. & Economics of Development and Planning, OER - ePathshala	<b>Lecture based, Classroom Discussion</b>

**Economics of Growth and Development II**

<b>Weekly Teaching Plan</b>	<b>Topic/Unit No.</b>	<b>Textbook [TB]/ Reference Book [RB]- Chapter/ Page No./ Open Education Resources [OER]</b>	<b>Teaching-Learning Method</b>
<b>Week 1</b>	<b>Unit 1</b>	Jhingan M.L., —The Economics of Development and Planning, Ray, Debraj , Development Economics, OER - ePathshala	<b>Lecture Based, Classroom Discussion</b>
<b>Week 2</b>	<b>Unit 1</b>	Jhingan M.L., —The Economics of Development and Planning, Ray, Debraj , Development Economics, OER - ePathshala	<b>Classroom Discussion</b>
<b>Week 3</b>	<b>Unit 2</b>	Jhingan M.L., —The Economics of Development and Planning, Ray, Debraj , Development Economics, OER - ePathshala	<b>Classroom Discussion, Presentation</b>
<b>Week 4</b>	<b>Unit 2</b>	Jhingan M.L., —The Economics of Development and Planning, Ray, Debraj , Development Economics, OER - ePathshala	<b>Problem solving, Lecture based</b>
<b>Week 5</b>	<b>Unit 3</b>	Jhingan M.L., —The Economics of Development and Planning, Ray, Debraj , Development Economics, OER - ePathshala	<b>Lecture based, Classroom Discussion</b>
<b>Week 6</b>	<b>Unit 3</b>	Jhingan M.L., —The Economics of Development and Planning, Ray, Debraj , Development Economics, OER - ePathshala	<b>Classroom Discussion, Presentation</b>
<b>Week 7</b>	<b>Unit 4</b>	Jhingan M.L., —The Economics of Development and Planning, Ray, Debraj , Development Economics, OER - ePathshala	<b>Lecture based, Classroom Discussion</b>
<b>Week 8</b>	<b>Unit 4</b>	Jhingan M.L., —The Economics of Development and Planning, Ray, Debraj , Development Economics, OER - ePathshala	<b>Lecture based, Classroom Discussion</b>

**Statistical Methods for Economics**



<b>Weekly Teaching Plan</b>	<b>Topic/Unit No.</b>	<b>Textbook [TB]/ Reference Book [RB]- Chapter/ Page No./ Open Education Resources [OER]</b>	<b>Teaching-Learning Method</b>
<b>Week 1</b>	<b>Unit 1</b>	Gupta,S.P, 'Statistical Methods', Patri,'Elementary Statistics', SWAYAM	<b>Lecture Based,Classroom Discussion</b>
<b>Week 2</b>	<b>Unit 1</b>	Gupta,S.P, 'Statistical Methods', Patri,'Elementary Statistics', SWAYAM	<b>Classroom Discussion</b>
<b>Week 3</b>	<b>Unit 2</b>	Gupta,S.P, 'Statistical Methods', Patri,'Elementary Statistics', SWAYAM	<b>Classroom Discussion, Presentation</b>
<b>Week 4</b>	<b>Unit 2</b>	Gupta,S.P, 'Statistical Methods', Patri,'Elementary Statistics', SWAYAM	<b>Problem solving, Lecture based</b>
<b>Week 5</b>	<b>Unit 3</b>	Gupta,S.P, 'Statistical Methods', Patri,'Elementary Statistics', SWAYAM	<b>Lecture based, Classroom Discussion</b>
<b>Week 6</b>	<b>Unit 3</b>	Gupta,S.P, 'Statistical Methods', Patri,'Elementary Statistics', SWAYAM	<b>Classroom Discussion, Presentation</b>
<b>Week 7</b>	<b>Unit 4</b>	Gupta,S.P, 'Statistical Methods', Patri,'Elementary Statistics', SWAYAM	<b>Lecture based, Classroom Discussion</b>
<b>Week 8</b>	<b>Unit 4</b>	Gupta,S.P, 'Statistical Methods', Patri,'Elementary Statistics', SWAYAM	<b>Lecture based, Classroom Discussion</b>

### Basic Econometrics

<b>Weekly Teaching Plan</b>	<b>Topic/Unit No.</b>	<b>Textbook [TB]/ Reference Book [RB]- Chapter/ Page No./ Open Education Resources [OER]</b>	<b>Teaching-Learning Method</b>
<b>Week 1</b>	<b>Unit 1</b>	Gujarati ,Damodar : Basic Econometrics, ePathshala	<b>Lecture Based,Classroom Discussion</b>
<b>Week 2</b>	<b>Unit 1</b>	Gujarati ,Damodar : Basic Econometrics, ePathshala	<b>Classroom Discussion</b>
<b>Week 3</b>	<b>Unit 2</b>	Gujarati ,Damodar : Basic Econometrics, ePathshala	<b>Classroom Discussion, Presentation</b>
<b>Week 4</b>	<b>Unit 2</b>	Gujarati ,Damodar : Basic Econometrics, ePathshala	<b>Problem solving, Lecture based</b>

<b>Week 5</b>	<b>Unit 3</b>	Gujarati ,Damodar : Basic Econometrics, ePathshala	<b>Lecture based, Classroom Discussion</b>
<b>Week 6</b>	<b>Unit 3</b>	Gujarati ,Damodar : Basic Econometrics, ePathshala	<b>Classroom Discussion, Presentation</b>
<b>Week 7</b>	<b>Unit 4</b>	Gujarati ,Damodar : Basic Econometrics, ePathshala	<b>Lecture based, Classroom Discussion</b>
<b>Week 8</b>	<b>Unit 4</b>	Gujarati ,Damodar : Basic Econometrics, ePathshala	<b>Lecture based, Classroom Discussion</b>

### Public Finance

<b>Weekly Teaching Plan</b>	<b>Topic/Unit No.</b>	<b>Textbook [TB]/ Reference Book [RB]-Chapter/ Page No./ Open Education Resources [OER]</b>	<b>Teaching-Learning Method</b>
<b>Week 1</b>	<b>Unit 1</b>		<b>Lecture Based,Classroom Discussion</b>
<b>Week 2</b>	<b>Unit 1</b>		<b>Classroom Discussion</b>
<b>Week 3</b>	<b>Unit 2</b>		<b>Classroom Discussion, Presentation</b>
<b>Week 4</b>	<b>Unit 2</b>		<b>Problem solving, Lecture based</b>
<b>Week 5</b>	<b>Unit 3</b>		<b>Lecture based, Classroom Discussion</b>
<b>Week 6</b>	<b>Unit 3</b>		<b>Classroom Discussion, Presentation</b>
<b>Week 7</b>	<b>Unit 4</b>		<b>Lecture based, Classroom Discussion</b>
<b>Week 8</b>	<b>Unit 4</b>		<b>Lecture based, Classroom Discussion</b>

### Indian Economy

<b>Weekly</b>	<b>Topic/Unit</b>	<b>Textbook [TB]/ Reference Book</b>	<b>Teaching-Learning</b>
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<b>Teaching Plan</b>	<b>No.</b>	<b>[RB]-Chapter/ Page No./ Open Education Resources [OER]</b>	<b>Method</b>
<b>Week 1</b>	<b>Unit 1</b>		<b>Lecture Based, Classroom Discussion</b>
<b>Week 2</b>	<b>Unit 1</b>		<b>Classroom Discussion</b>
<b>Week 3</b>	<b>Unit 2</b>		<b>Classroom Discussion, Presentation</b>
<b>Week 4</b>	<b>Unit 2</b>		<b>Problem solving, Lecture based</b>
<b>Week 5</b>	<b>Unit 3</b>		<b>Lecture based, Classroom Discussion</b>
<b>Week 6</b>	<b>Unit 3</b>		<b>Classroom Discussion, Presentation</b>
<b>Week 7</b>	<b>Unit 4</b>		<b>Lecture based, Classroom Discussion</b>
<b>Week 8</b>	<b>Unit 4</b>		<b>Lecture based, Classroom Discussion</b>

### History of Economic Ideas

<b>Weekly Teaching Plan</b>	<b>Topic/Unit No.</b>	<b>Textbook [TB]/ Reference Book [RB]-Chapter/ Page No./ Open Education Resources [OER]</b>	<b>Teaching-Learning Method</b>
<b>Week 1</b>	<b>Unit 1</b>		<b>Lecture Based, Classroom Discussion</b>
<b>Week 2</b>	<b>Unit 1</b>		<b>Classroom Discussion</b>
<b>Week 3</b>	<b>Unit 2</b>		<b>Classroom Discussion, Presentation</b>
<b>Week 4</b>	<b>Unit 2</b>		<b>Problem solving, Lecture based</b>
<b>Week 5</b>	<b>Unit 3</b>		<b>Lecture based, Classroom Discussion</b>

<b>Week 6</b>	<b>Unit 3</b>		<b>Classroom Discussion, Presentation</b>
<b>Week 7</b>	<b>Unit 4</b>		<b>Lecture based, Classroom Discussion</b>
<b>Week 8</b>	<b>Unit 4</b>		<b>Lecture based, Classroom Discussion</b>

**Data Analysis of Indian Economy**

<b>Weekly Teaching Plan</b>	<b>Topic/Unit No.</b>	<b>Textbook [TB]/ Reference Book [RB]-Chapter/ Page No./ Open Education Resources [OER]</b>	<b>Teaching-Learning Method</b>
<b>Week 1</b>	<b>Unit 1</b>		
<b>Week 2</b>	<b>Unit 1</b>		
<b>Week 3</b>	<b>Unit 2</b>		
<b>Week 4</b>	<b>Unit 2</b>		

**Research Methodology for Economics**

<b>Weekly Teaching Plan</b>	<b>Topic/Unit No.</b>	<b>Textbook [TB]/ Reference Book [RB]-Chapter/ Page No./ Open Education Resources [OER]</b>	<b>Teaching-Learning Method</b>
<b>Week 1</b>	<b>Unit 1</b>		<b>Lecture Based, Classroom Discussion</b>
<b>Week 2</b>	<b>Unit 1</b>		<b>Classroom Discussion</b>
<b>Week 3</b>	<b>Unit 2</b>		<b>Classroom Discussion, Presentation</b>
<b>Week 4</b>	<b>Unit 2</b>		<b>Problem solving, Lecture based</b>
<b>Week 5</b>	<b>Unit 3</b>		<b>Lecture based, Classroom Discussion</b>

<b>Week 6</b>	<b>Unit 3</b>		<b>Classroom Discussion, Presentation</b>
<b>Week 7</b>	<b>Unit 4</b>		<b>Lecture based, Classroom Discussion</b>
<b>Week 8</b>	<b>Unit 4</b>		<b>Lecture based, Classroom Discussion</b>

### **International Trade and Finance**

<b>Weekly Teaching Plan</b>	<b>Topic/Unit No.</b>	<b>Textbook [TB]/ Reference Book [RB]-Chapter/ Page No./ Open Education Resources [OER]</b>	<b>Teaching-Learning Method</b>
<b>Week 1</b>	<b>Unit 1</b>		<b>Lecture Based, Classroom Discussion</b>
<b>Week 2</b>	<b>Unit 1</b>		<b>Classroom Discussion</b>
<b>Week 3</b>	<b>Unit 2</b>		<b>Classroom Discussion, Presentation</b>
<b>Week 4</b>	<b>Unit 2</b>		<b>Problem solving, Lecture based</b>
<b>Week 5</b>	<b>Unit 3</b>		<b>Lecture based, Classroom Discussion</b>
<b>Week 6</b>	<b>Unit 3</b>		<b>Classroom Discussion, Presentation</b>
<b>Week 7</b>	<b>Unit 4</b>		<b>Lecture based, Classroom Discussion</b>
<b>Week 8</b>	<b>Unit 4</b>		<b>Lecture based, Classroom Discussion</b>

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