MAEC

# MASTER OF ARTS

# (ECONOMICS)

## ASSIGNMENTS 2024-25

## Fourth Semester Courses

**(For learners appearing in term-end exams in June 2025 and December 2025 Sessions)**

**SCHOOL OF SOCIAL SCIENCES**
**INDIRA GANDHI NATIONAL OPEN UNIVERSITY**
**MAIDAN GARHI-110068**

# Master of Arts (Economics)

# (TMA)

# (2024-25)

Dear Student,

As explained in the programme guide for MAEC, assignments carry 30 per cent weightage in a course and it is mandatory that you must secure at least 40 per cent marks in assignments to complete a course successfully. Note that you must submit the assignments before appearing in Term End Examination of a course.

Before attempting the assignments, please read the instructions provided in the programme guide sent to you separately. In this booklet, we have included the assignments for all the courses pertaining to the **Fourth semester.** In each course there is a Tutor Marked Assignment (TMA). You must do the assignment for those courses for which you have registered. **Do remember that you must prepare and submit the assignments separately for each course.** Make sure that you submit the assignments well in time for those courses in which you plan to appear in the Term End Examination.

It is important that you write the answers to all the TMA questions in your own words. Your answers should be within the approximate range of the word-limit set for a particular section.

As mentioned in the Programme Guide, you need to submit all the assignments within the stipulated time for being eligible to appear in the term-end examination to the **coordinator of your study centre**. This assignment is valid for two admission cycles (**July 2024** and **January 2025**).

**The assignments should be submitted to the Coordinator of your Study Centre:**

1. **By 30th April 2025,** for the students willing to appear in **June 2025 term-end examination**.
2. **By 31st October 2025,** for the students willing to appear in **December 2025 term end examination.**

**You must obtain a receipt from the Study Centre for the assignments submitted and retain it. If possible, keep a xerox copy of the assignments with you.**

The Study Centre will have to return the assignments to you after they are evaluated. Please insist on this. The Study Centre has to send the marks to the Student Evaluation Division at IGNOU, New Delhi.

We expect you to answer each question as per guidelines for each category as mentioned in the assignment. You will find it useful to keep the following points in mind:

1) **Planning:** Read the assignments carefully, go through the Units on which they are based. Make some points regarding each question and then rearrange them in a logical order.

2) **Organisation:** Be a little selective and analytic before drawing up a rough outline of your answer. Give adequate attention to your introduction and conclusion.

   Make sure that your answer:
   a) is logical and coherent;
   b) has clear connections between sentences and paragraphs, and
   c) is written correctly giving adequate consideration to your expression, style and presentation.

3) **Presentation:** Once you are satisfied with your answer, you can write down the final version for submission, writing each answer neatly and underlining the points you wish to emphasize. Make sure that the answer is within the stipulated word limit.

# MECE-101: INTRODUCTORY ECONOMETRIC METHODS
## Tutor Marked Assignment

**Course Code: MECE-101**
**Asst. Code: MECE-101/AST/2024-25**
**Maximum Marks: 100**

**Note: Answer all the questions. While questions in Section A carry 20 marks each, those in Section B carry 12 marks each.**

### Section A

1. What is meant by heteroscedasticity? What are its consequences? How do you detect the presence of heteroscedasticity in a data set?
2. Explain why an error term is added to the regression model. What assumptions are made about the error term? What are the implications of such assumptions? What will happen to the estimators of the parameters of the regression model, if these assumptions are violated?

### Section B

3. Consider the regression equation $Y_i = \alpha + \beta X_i + u_i$ where $u_i$ is a stochastic error term.
    a) Explain how estimators of $\alpha$ and $\beta$ can be obtained.
    b) What algebraic properties do the estimators fulfil?
4. What is meant by identification in a simultaneous equation model? Check the identification status of the equations in the following model:
   Demand function: $Q_t = \alpha_0 + \alpha_1 P_t + \alpha_2 X_t + u_{1t}$
   Supply function: $Q_t = \beta_0 + \beta_1 P_t + u_{2t}$
5. What is meant by multicollinearity? What are its consequences on estimates? What remedial measures do you suggest for the problem?
6. While estimating a regression model you found that the explanatory variable is measured with certain error. Specify the model. What are its consequences on the parameters?
7. Write short notes on the following:
    a) Dummy variable trap
    b) Coefficient of Determination

# MECE-102: ADVANCED ECONOMETRIC METHODS
## Tutor Marked Assignment

**Course Code: MECE-102**
**Asst. Code: MECE-102/AST/2024-25**
**Maximum Marks: 100**

**Note: Answer all the questions. While questions in Section A carry 20 marks each, those in Section B carry 12 marks each.**

### Section A

1. a) What is simultaneity bias? Explain the conditions required for identification of parameters in a simultaneous equation model.
   b) In the following two-equation system check the identification status of both the equations.

$$Y_1 = \propto_1 + \propto_2 Y_2 + u_1$$
$$Y_2 = \beta_1 + \beta_2 Y_1 + \beta_3 Z_1 + \beta_4 Z_2 + u_2$$

2. Distinguish between weak stationarity and strong stationarity. Explain the methods of testing for stationarity in a univariate time series model.

### Section B

3. What is the underlying idea behind the probit model? Explain how parameters are estimated in the probit model.

4. What is meant by dynamic model? Explain how the following model can be estimated?

$$y_t = \propto + \beta x_t + \gamma y_{t-1} + u_t$$

where $|\gamma| < 1$ and $u_t = \rho\, u_{t-1} + \varepsilon_t$. In the above model $\varepsilon_t$ is the usual stochastic error term with mean zero and variance $\sigma^2$ and $|\rho| < 1$.

5. Explain the central idea behind the multinomial logit model. What the underlying assumptions inn this model?
6. What are the advantages of panel data models? Specify the fixed effects model and explain how it can be estimated.
7. Write short notes on the following:
   a) ARCH model
   b) Granger-causality

# MCS-224: Artificial Intelligence and Machine Learning
## Tutor Marked Assignment

**Course Code: MCS 224**
**Asst. Code: MCS 224 / AST/2024-2025**
**Total Marks: 100**

**Note: This assignment has sixteen questions of 5 Marks each, answer all questions. Rest 20 marks are for viva voce. You may use illustrations and diagrams to enhance the explanations. Please go through the guidelines regarding assignments given in the Programme Guide (MCA) for the format of presentation.**

**Q1:** Classify AI on the basis of the functionalities of AI. Also discuss some important applications of AI.

**Q2:** Define Supervised, Unsupervised and Reinforcement learning with a suitable examples of each

**Q3:** Compare Artificial Intelligence, Machine Learning, and Deep Learning.

**Q4:** Find the minimum cost path for the 8-puzzle problem, where the start and goal state are given as follows:

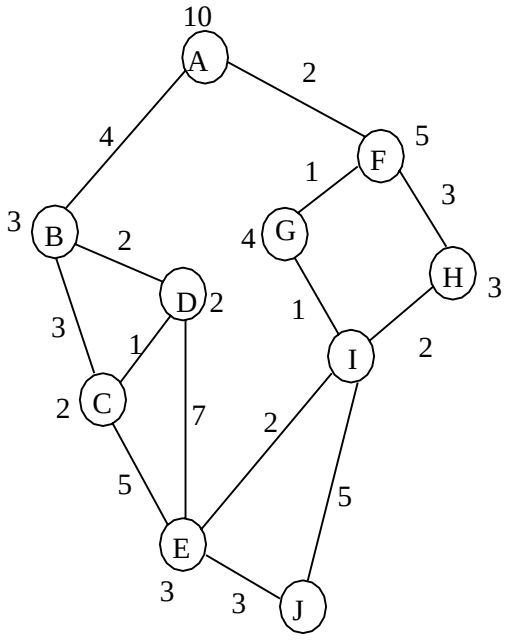
| | | |
|---|---|---|
| 1 | 2 | 3 |
| 4 | 8 | - |
| 7 | 6 | 5 |

Start State

| | | |
|---|---|---|
| 1 | 4 | 7 |
| - | 8 | 6 |
| 2 | 3 | 5 |

Goal State

**Q5:** Consider the following graph. The numbers written on edges represents the distance between the nodes and the numbers written on nodes represents the heuristic value. Find the most cost- effective path to reach from Noda A to node J using A* Algorithm.



**Q6:** Discuss the transforming an FOPL Formula into Prenex Normal Form with suitable example.

Also, discuss Skolomization with a suitable example.

**Q7:** Explain Forward Chaining Systems and Backward Chaining Systems with a suitable examplefor each.

**Q8:** Prove that following properties hold for fuzzy sets

(i) Commutativity (ii) Associativity (iii) Distributivity (iv) Demorgan's Law

**Q9:** Briefly discuss the various Ensemble methods.

**Q10:** What is logistic regression? Explain with the help of a suitable example.

**Q11:** Explain Decision Tree algorithm with the help of a suitable example.

**Q12:** Explain Naïve Bayes Classification Algorithm with a suitable example.

**Q13:** Explain K-Nearest Neighbors classification Algorithm with a suitable example.

**Q14:** For the given points of two classes red and blue:

Blue: { (1,2), (2,1), (1,-1), (1,-2)}
Red : { (3,1), (4,3), (3,5), (6,3)}

Plot a graph for the red and blue categories. Find the support vectors and optimal separating line.

**Q15:** Compute the Linear Discriminant projection for the following two-dimensional dataset:

$X_1 = (x_1, x_2) = (4, 2), (2, 2), (3, 2), (3, 5), (3, 4)$
$X_2 = (x_1, x_2) = (8, 7), (9, 6), (7, 7), (9, 8), (10, 9)$

**Q16:** Explain FP Tree Growth Algorithm with a suitable example.

# MCS-226: Data Science & Big Data Number
# Tutor Marked Assignment

**Course Code: MCS 226**
**Asst. Code: MCS 226 / AST/2024-2025**
**Total Marks: 100**

**Note: This assignment has 10 questions of 8 Marks each, answer all questions. Rest 20 marks are for viva voce. You may use illustrations and diagrams to enhance the explanations. Please go through the guidelines regarding assignments given in the Programme Guide (MCA) for the format of presentation.**

**Q1:** What is Exploratory Data Analysis (EDA) and why is it important in the data science workflow? What are the key components of the data science process?

**Q2:** Discuss the implications of hypothesis testing results in decision-making. Provide examples of real-world situations where statistical hypothesis testing is commonly used.

**Q3:** What is data preprocessing, and why is it a crucial step in the data science workflow? Why is it important to identify and handle outliers in a dataset during data preprocessing?

**Q4:** Discuss the significance of the three Vs (Volume, Velocity, Variety) in the context of big data. Provide examples of each of the three Vs in real-world scenarios. How does MapReduce facilitate parallel processing of large datasets? Explain the functionality of the Map function in the MapReduce paradigm with the help of an example.

**Q5:** Explain the purpose of Apache Hive in the Hadoop ecosystem. How does Spark address limitations of the traditional MapReduce model?

**Q6:** Define NoSQL databases and explain the primary motivations behind their development. Provide examples of scenarios where each type of NoSQL database is suitable.

**Q7:** How does collaborative filtering contribute to enhancing user experience and engagement in recommendation systems? Provide examples of industries or platforms where collaborative filtering is widely used.

**Q8:** Define what a Data Stream Bloom Filter is and explain its primary purpose in data stream processing. Introduce the Flajolet-Martin Algorithm and its role in estimating the cardinality of a data stream.

**Q9:** Describe the role of link analysis in the PageRank algorithm. How are links between web pages interpreted in the context of PageRank?

**Q10:** Explain the concept of decision trees in classification. Provide an example of building and visualizing a decision tree using R. How can K-means clustering be applied to a dataset in R?

# MGG 011: Geographical Information Systems I
# Tutor Marked Assignment

**Course Code: MGG-011**
**Assignment Code: MGG-011/TMA/2024-25**
**Maximum Marks: 100**

## Part-A

**Note: All Questions are compulsory. Each question carries 10 marks.**

1. How is geography associated with everyday life? Explain.
2. Discuss the functionalities and capabilities of GIS.
3. Give a detailed discussion on the relevance of GIS and its future trend.
4. Explain the spatial data models in GIS.

## Part-B

**All Questions are compulsory. Each question carries 10 marks.**

1. Discuss the data sources of GIS in details.
2. What are attribute based and spatial data queries? Explain.
3. Explain the role of GIS Applications in Natural Resource Management.

## Part-C

**8. Write Short notes on the following. Each question carries 5 marks.**

a) Definition of GIS
b) GIS as science
c) Smart maps
d) Map Projection
e) Metadata
f) Spatial Decision Support System

# MECE-104: ECONOMICS OF SOCIAL SECTOR AND ENVIRONMENT
## Tutor Marked Assignment

**Course Code: MECE-104**
**Assignment Code: MEC-108/AST/2024-25**
**Maximum Marks: 100**

**Note: Answer all the questions. While questions in Section A carry 20 marks each (to be answered in about 500 words each) those in Section B carry 12 marks each (to be answered in about 300 words each). In the case of numerical questions word limits do not apply.**

### Section A

1) Discuss the various situations of 'market failure' leading to environmental degradation.

2) Discuss the significance of 'efficiency wage' in contributing to health and productivity of workers.

### Section B

3) Explain how 'poverty' is not the sole determinant of malnutrition.

4) Specify the fundamental challenges of using the non-renewable resources optimally.

5) Derive the results for the optimal use of renewable resources under the discrete and continuous time frames.

6) Describe the concept of 'quasi markets' in the provisioning of public services.

7) Derive the conditions of optimality for buying health insurance in cases of absence/presence of free riders.

# MECE-103: ACTUARIAL ECONOMICS: THEORY AND PRACTICE
## Tutor Marked Assignment

**Course Code: MECE-103**
**Assignment Code: MECE-103/TMA/2024-25**
**Marks: 100**

**Note: Answer all the questions.**

### Section-A

**Answer the following questions in about 700 words each. Each question carries 20 marks.**

**2X20=40**

1. Why is health insurance important for individuals? Describe the various types of health insurance contracts.
2. Define the term risk. Discuss various categories of risk. How is valuation of risk made?

### Section B

**Answer the following questions in about 400 words each. Each question carries 12marks.**

**5X12=60**

1. What are the assumptions on which the Black-Scholes theorem is based? What are the important conclusions of the Black-Scholes theorem?
2. What is meant by annuities? Distinguish between various types of annuities.
3. Distinguish between the traditional approach and the integrated approach to risk management.
4. Bring out the significance of extreme value theory.
5. Write short notes on the following:
   a) Sinking Fund
   b) Net Present Value
   c) Hazard Function

# MGPE-006: GANDHI'S ECONOMIC THOUGHT
# TUTOR MARKED ASSIGNMENT (TMA)

**Course Code: MGPE-006**
**Assignment Code: MGPE-006/ASST/TMA/2024-25**
**Marks: 100**

**Answer five questions in all, selecting at least two questions from each section. Each question is to be answered in about 500 words. Each question carries 20 marks.**

## SECTION-I

1. Examine the 'nationalist' critique of British colonial economic policy.

2. 'Multiplicity of wants and acquisitiveness lead to moral decay and social disintegration.' (Gandhi). Comment.

3. What in your assessment are the basic features and the merits of Gandhi's theory of trusteeship?

4. Explain the main differences between the dominant paradigm of development and the Gandhian idea of development.

5. Examine the measures initiated by the government to promote economic sustainability and social Justice in India.

## SECTION-II

**Write a short note on each part of the question in about 250 words:**

6. a) Major challenges facing the Indian agrarian economy
   b) Gandhi's Concept of Machine

7. a) Gandhi's model of industrialization and its present relevance
   b) Doctrine of Bread Laborer

8. a) Role and relevance of cottage and spinning units
   b) Gandhi perception of ensuring economic equality

9. a) Gandhi and Ambedker's Economic consensus
   b) Gandhi's Satyagraha Movement in South Africa

10. a) Swadeshi, Sarvodaya and Constructive Programme
    b) Gandhi's concept of self-sufficiency

# MWG 111: Women in the Economy
# Tutor Marked Assignment

**Course Code: MWG 111**
**Asst. Code: MWG 111 / AST-1/2024-2025**
**Total Marks: 100**

Note: Please write all answers in your own words. Assignments with plagiarized material (copied directly from course books or any other external sources) will be marked ZERO.

**Section A** **Marks 50**

**Answer the following question in about 1500 words:**

Q1. Answer any ONE question from the following:

Watch the video https://www.youtube.com/watch?v=j9I7pDhMg30 ( English)

Or

https://www.youtube.com/watch?v=H2pReSdUnFM ( Hindi)

Write a critique of the discussion in the video based on your understanding of Unit 1 and 2 (Block 1) and units 6 & 7 (Block 2) by quoting feminist scholarship.

Or

Write an essay on "Status of Women in the economy: National and Internation Scenario". Justify your arguments by providing feminist scholarship.

**Section B**

**Marks: 50 (10X5)**

**Answer each of the following questions in 1000 words:**

Q2. Explain the impact of globlisation on women's work in India.

Q3. Explain the interlinkages between migration and trafficking.

Q4. Do you see any change in the way women in the labour force are mobilising and putting up resistance? Justify your answer by giving case studies.

Q5. Describe any two government programmes/schemes/legislations that have been recently initiated to draw more women into the work force.

Q6. Write theoretical framework of women and work.

# MGSE 009: Gender Issues in Work, Employment and Productivity
## Assignment (TMA)

**Course Code: MGSE 009**
**Assignment Code: MGSE 009/ AST/2024-25**
**Maximum Marks: 100**

**Note: Answer all the questions. While questions in Section A carry 20 marks each (to be answered in about 700 words each) those in Section B carry 12 marks each (to be answered in about 500 words each).**

### Section-A

1. Do you think that work should be redefined from a Gender perspective? Justify your answers with suitable case studies and data.
2. Explain various theories related to Labour market discrimination and exploitation with suitable examples.

### Section B

3. What has been the response of the law to sexual harassment in the workplace? Explain the laws dealing with Occupational Health and Safety (OHS).
4. Discuss the activities of Trade Union in the context of the Unionization of Women
5. Why is women's visibility so crucial in work? Explain the reasons for statistical invisibility.
6. Discuss how gender stratification changed over time.
7. Write short notes on the following:
    i) Job crowding Hypothesis
    ii) Feudal Society
    iii) Women care providers
    iv) The "Doubly excluded" in the informal economy : Migrant workers