

Department of Economics
Delhi School of Economics
University of Delhi

Minutes of Meeting

Subject: B.A. (Hons) Economics, Second Semester
Course : (ECON 005) Intermediate Mathematical Methods for Economics
Credits: 4
Duration (per week): 4 hours (3Lectures + 1 Tutorial)
Date: March 17, 2023
Venue: Virtual Meeting
Chairs: Sandip Datta and Sugata Bag

The meeting was attended by the following teachers:

| Sl. No. | Teacher Name | College Name |
|----------------|----------------------|---|
| 1 | Akanksha | Daulat Ram College |
| 2 | Nidhi Pande Aggarwal | DCAC |
| 3 | Niti Khandelwal Garg | Kirori Mal College |
| 4 | Sanjeev Grewal | St Stephens College |
| 5 | Nidhi Gupta | SRCC |
| 6 | Sandhya Varshney | Dayal Singh College |
| 7 | Shruti Sabharwal | Jesus & Mary College |
| 8 | Sonam Gupta | Hansraj College |
| 9 | Surbhi Gupta | LSR College |
| 10 | Gita Golani | Shyama Prasad Mukherji College |
| 11 | Jasneet Kaur Wadhwa | SGTB Khalsa College |
| 12 | Harpreet Kaur | Sri Guru Gobind Singh College of Commerce |
| 13 | Manavi Jain | Miranda House College |
| 14 | Sonakshi Jain | Sri Venkateswara College |
| 15 | Nikita Gupta | Shivaji College |
| 16 | Nivedita Mullick | Gargi College |
| 17 | Ranjan Swarnakar | ARSD College |
| 18 | Anita Mathur | SRCC |
| 19 | Neha | ARSD College |
| 20 | Akanksha Aggarwal | Jesus Mary College |
| 21 | Ganita Bhupal | Rajdhani College |
| 22 | Anita | Lakshmibai College |

The teachers present (online) discussed various aspects of the course itself and the teaching and evaluation process for the current semester. The committee agreed on the followings:

1. The syllabus and the reading list for the course during the current semester remain unchanged. However, the book “*Linear Algebra and its applications*” (4th Edition, 2012) by David Lay (Pearson) is suggested as a teacher’s reference.

Essential Readings:

- [SH 2002] Sydsaeter, K., Hammond, P. (2002). *Mathematics for economic analysis*, Pearson Educational.
- [HLMRS 2001] Hoy, M., Livernois, J., McKenna, C., Rees, R., Stengos, T. (2001). *Mathematics for Economics*, Prentice-Hall India.

2. There was a fairly wide-ranging discussion on various aspects of the evaluation process. There are 3 stages of assessments. The following pattern will be followed -

- I. Internal Assessment (IA): 30 marks –
 - two class tests (12 marks each), and
 - 6 marks for attendance.
- II. Continuous Assessment (CA): 40 marks –
 - At least 2 written class tests/class assignments, adding up to total 30 marks.
 - The rest 5 marks could also be based on class tests or oral quizzes/ tutorial participation at the discretion of the teacher concerned.
 - 5 marks for attendance
- III. The end semester exam: 90 marks will comprise numerical and other questions.

Suggestive pattern for the end-semester final examination:

- roughly equal weights for each unit
- The question paper will comprise of three parts –
 - with varying degrees of difficulty
 - each part will have questions from each unit
 - Part – A: 40 marks – 5 questions, 8 marks each
 - Part – B: 30 marks – 3 questions, 10 marks each
 - Part – C: 20 marks – 2 questions, 10 marks each

DISCIPLINE SPECIFIC CORE COURSE – 5
(DSC-5): INTERMEDIATE MATHEMATICAL METHODS FOR ECONOMICS

The syllabus, teaching hours and topic-wise reading references –

1. UNIT –I: Linear Algebra (15 Hours)

Vector spaces: algebraic and geometric properties, scalar product, norm, orthogonality; linear transformations: properties, matrix representation and elementary operations; systems of linear equations: properties of their solution sets; determinants: characterization, properties and applications; eigenvalues and eigenvectors, diagonalization, spectral theorem.

Ref: SH 2002, chapters – 12, 13, 14

2. UNIT – II: Functions of several real variables (15 Hours)

Geometric representation: graphs and level curves; differentiable functions: characterisation, properties concerning various operations and applications; second order derivatives: properties and applications; the implicit function theorem, application to comparative statics; homogeneous and homothetic functions: characterisation, applications.

Ref: SH 2002, chapters – 15, 16

3. UNIT – III: Multivariate optimization (15 Hours)

Convex sets; geometric properties of functions: convex functions, their characterisation, properties and applications; quasi-convex functions, their characterisation, properties and applications; unconstrained optimisation: geometric characterisation, characterisation using calculus, applications.

Ref: SH 2002, chapters – 17

