Information of the course on **Mathematical Methods (MA512)** at IIT Ropar, India

Course contents:

- Fourier Series, generalized Fourier series, Fourier Cosine series, Fourier Sine series, Fourier integrals.
- Fourier transform, Laplace transform and their applications to differential equations.
- Z-transform, Hankel transform, Mellin transform and their properties.
- Concept and calculation of Green's function, Approximate Green's function, Green's function method for differential equations.

Class and tutorial timings for the course:

- Monday, 10:00 AM to 10:50 AM
- Tuesday, 10:00 AM to 10:50 AM
- Wednesday, 10:00 AM to 10:50 AM
- Tuesday, 8:00 AM to 8:50 AM (Tutorial)

Credit system for the course:

- 10 marks for homework assignments.
- 20 marks for class tests. There will be two class tests of equal marks each. First class test will be on **August 31, 2023** and second will be on **October 26, 2023**.
- 30 marks for mid-sem exam. Mid-sem exam will be as per institute schedule.
- 40 marks for end-Sem exam. End-sem exam will be as per institute schedule.

Grading and attendance policy:

1. There will be relative grading with a minimum threshold for A (Outstanding), D(Marginal) and NP (the Audit pass) grades as per the criteria given below.
   (a) The minimum percentage for the award of an "A"grade is 80%.
   (b) The minimum percentage for the award of "D"grade is 30%.
   (c) The Audit Pass "NP"is awarded if the student's attendance is above 75% in the class and he/she has obtained at least a "C-"grade.
2. Attendance policy is as per institute rules.

Note: Based on circumstances above evaluation scheme may change.

References for the course:

1. R.R. Goldberg; Methods of Real Analysis, CBS Publishers & Distributions Pvt Ltd, Reprint 2022.

2. W. Rudin; Principles of Mathematical Analysis, McGraw-Hill, 1976.

3. G.B. Folland; Fourier Analysis and its applications, The Wadsworth and Brooks/Cole Mathematics Series, 1992.

4. J. L. Schiff; The Laplace Transform: Theory and Applications, Springer, 1999.

5. L. Debnath and D. Bhatta; Integral Transforms and Their Applications, CRC press, 2006.