

### Lesson Plan & Work-done Diary for AY:2026-27, Odd Semester

| Course with Code: Transform Techniques and Optimization Theory - IBMATEC301 |                      |                                                                                                    |                | Faculty:  |                            |                | Semester & Section: III ECE |                          |
|-----------------------------------------------------------------------------|----------------------|----------------------------------------------------------------------------------------------------|----------------|-----------|----------------------------|----------------|-----------------------------|--------------------------|
| Class No.                                                                   | Date Planned (DD/MM) | Topics to be covered                                                                               | TLP Planned    | Class No. | Date of Conduction (DD/MM) | Topics Covered | TLP Executed                | Remarks if any deviation |
| <b>MODULE-5: Transportation problems</b>                                    |                      |                                                                                                    |                |           |                            |                |                             |                          |
| 1                                                                           |                      | Formulation of transportation problem, Initial Basic feasible solution by North-West Corner method | Chalk and Talk | 1         |                            |                |                             |                          |
| 2                                                                           |                      | North-West Corner method                                                                           | Chalk and Talk | 2         |                            |                |                             |                          |
| 3                                                                           |                      | North-West Corner and Vogel's approximation method                                                 | Chalk and Talk | 3         |                            |                |                             |                          |
| 4                                                                           |                      | Vogel's approximation method                                                                       | Chalk and Talk | 4         |                            |                |                             |                          |
| 5                                                                           |                      | Vogel's approximation method-Problems                                                              | Chalk and Talk | 5         |                            |                |                             |                          |
| 6                                                                           |                      | Formulation of assignment problems,                                                                | Chalk and Talk | 6         |                            |                |                             |                          |
| 7                                                                           |                      | Hungarian method                                                                                   | Chalk and Talk | 7         |                            |                |                             |                          |
| 8                                                                           |                      | Hungarian method-Problems                                                                          | Chalk and Talk | 8         |                            |                |                             |                          |
|                                                                             |                      |                                                                                                    |                |           |                            |                |                             |                          |
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| Course with Code: Transforms and Statistics -IBMATME301 |                      |                                                                              |                | Faculty:  |                            |                | Semester & Section: III ME |                          |
|---------------------------------------------------------|----------------------|------------------------------------------------------------------------------|----------------|-----------|----------------------------|----------------|----------------------------|--------------------------|
| Class No.                                               | Date Planned (DD/MM) | Topics to be covered                                                         | TLP Planned    | Class No. | Date of Conduction (DD/MM) | Topics Covered | TLP Executed               | Remarks if any deviation |
| <b>MODULE-1: Fourier Series</b>                         |                      |                                                                              |                |           |                            |                |                            |                          |
| 9                                                       |                      | Periodic functions, Euler's Formula, Conditions for Fourier series expansion | Chalk and Talk |           |                            |                |                            |                          |
| 10                                                      |                      | Fourier series of functions in $(-l, l)$                                     | Chalk and Talk |           |                            |                |                            |                          |
| 11                                                      |                      | Fourier series of functions in $(0, 2l)$                                     | Chalk and Talk |           |                            |                |                            |                          |
| 12                                                      |                      | Fourier series of Even and odd functions                                     | Chalk and Talk |           |                            |                |                            |                          |
| 13                                                      |                      | Fourier series of Even and odd functions-Problems                            | Chalk and Talk |           |                            |                |                            |                          |
| 14                                                      |                      | Half range Fourier series                                                    | Chalk and Talk |           |                            |                |                            |                          |
| 15                                                      |                      | Half range Fourier series-Problems                                           | Chalk and Talk |           |                            |                |                            |                          |
| 16                                                      |                      | Practical harmonic analysis.                                                 | Chalk and Talk |           |                            |                |                            |                          |
| 17                                                      |                      | Practical harmonic analysis-Problems                                         | Chalk and Talk |           |                            |                |                            |                          |
|                                                         |                      |                                                                              |                |           |                            |                |                            |                          |
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| Course with Code: Transforms and Statistics -1BMATME301 |                      |                                                                                                                               |                | Faculty:  |                            |                | Semester & Section: III ME |                          |
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| <b>MODULE-4: Linear programming problems</b>            |                      |                                                                                                                               |                |           |                            |                |                            |                          |
| 18                                                      |                      | Introduction to optimization techniques, nature and characteristics of operation research; Introduction to Linear programming | Chalk and Talk |           |                            |                |                            |                          |
| 19                                                      |                      | Graphical solution                                                                                                            | Chalk and Talk |           |                            |                |                            |                          |
| 20                                                      |                      | Graphical solution-Problems                                                                                                   | Chalk and Talk |           |                            |                |                            |                          |
| 21                                                      |                      | Simplex Method                                                                                                                | Chalk and Talk |           |                            |                |                            |                          |
| 22                                                      |                      | Simplex Method-Problems                                                                                                       | Chalk and Talk |           |                            |                |                            |                          |
| 23                                                      |                      | Simplex Method and Big M Method                                                                                               | Chalk and Talk |           |                            |                |                            |                          |
| 24                                                      |                      | Big M Method                                                                                                                  | Chalk and Talk |           |                            |                |                            |                          |
| 25                                                      |                      | Big M Method-Problems                                                                                                         | Chalk and Talk |           |                            |                |                            |                          |
|                                                         |                      |                                                                                                                               |                |           |                            |                |                            |                          |
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| <b>MODULE-3: Discrete Transforms - Z-Transform</b>      |                      |                                                                               |                |           |                            |                |                            |                          |
| 26                                                      |                      | Z-transforms: Definition, Standard Z-transforms-Problems                      | Chalk and Talk |           |                            |                |                            |                          |
| 27                                                      |                      | Damping and shifting rules-Problems                                           | Chalk and Talk |           |                            |                |                            |                          |
| 28                                                      |                      | Statements of initial value theorem and Final Value Theorem (statements only) | Chalk and Talk |           |                            |                |                            |                          |
| 29                                                      |                      | Inverse Z-transform- Power series method, Partial fraction method             | Chalk and Talk |           |                            |                |                            |                          |
| 30                                                      |                      | <b>Inverse Z-transform- Partial fraction method, inverse integral method.</b> | Chalk and Talk |           |                            |                |                            |                          |
| 31                                                      |                      | Convolution theorem                                                           | Chalk and Talk |           |                            |                |                            |                          |
| 32                                                      |                      | Application of Z-transforms to solve difference equations                     | Chalk and Talk |           |                            |                |                            |                          |
| 33                                                      |                      | Solution of difference equations-                                             | Chalk and Talk |           |                            |                |                            |                          |
|                                                         |                      |                                                                               |                |           |                            |                |                            |                          |
|                                                         |                      |                                                                               |                |           |                            |                |                            |                          |
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| <b>MODULE-2: Fourier Transform</b>                      |                      |                                                                                                         |                |           |                            |                |                            |                          |
| 34                                                      |                      | Infinite Fourier transforms: Definition, Properties-Linear property, Change of scale, shifting property | Chalk and Talk |           |                            |                |                            |                          |
| 35                                                      |                      | Fourier transforms- Problems                                                                            | Chalk and Talk |           |                            |                |                            |                          |
| 36                                                      |                      | Fourier cosine transforms- Problems                                                                     | Chalk and Talk |           |                            |                |                            |                          |
| 37                                                      |                      | Fourier sine transforms- Problems                                                                       | Chalk and Talk |           |                            |                |                            |                          |
| 38                                                      |                      | Modulation theorem. Inverse transforms, Convolution theorem and its significance                        | Chalk and Talk |           |                            |                |                            |                          |
| 39                                                      |                      | Fourier transform of derivatives and integrals                                                          | Chalk and Talk |           |                            |                |                            |                          |
| 40                                                      |                      | Solution of PDE's using Fourier transforms                                                              | Chalk and Talk |           |                            |                |                            |                          |
| 41                                                      |                      | Discrete Fourier transform (DFT), Inverse DFT                                                           | Chalk and Talk |           |                            |                |                            |                          |
| 42                                                      |                      | Fast Fourier transform (FFT)                                                                            |                |           |                            |                |                            |                          |
|                                                         |                      |                                                                                                         |                |           |                            |                |                            |                          |

|                    | Activity                                         | Planned                        | Actual             | Remarks |
|--------------------|--------------------------------------------------|--------------------------------|--------------------|---------|
| 1                  | Theory Classes                                   | 42                             |                    |         |
| 2                  | Assignments/ Quizzes/<br>Self-study              | 5 Assignments and 5<br>Quizzes |                    |         |
| 3                  | Tutorials/ Extra classes                         | 20                             |                    |         |
| 4                  | Internal Assessments                             | 3                              |                    |         |
| 5                  | ICT based Teaching<br>(% of usage in Curriculum) |                                |                    |         |
| Planning           |                                                  |                                | Execution          |         |
| Faculty Signature: |                                                  |                                | Faculty Signature: |         |
| HoD Signature:     |                                                  |                                | HoD Signature:     |         |