Mathematics III

Code: M302

Contact: 3L + 1T

Credits: 4

Syllabus

Course outcome:

|  |  |
| --- | --- |
| CO | Statement |
| C01 | Able to apply the knowledge of Fourier Series and Fourier Transform in various engineering problems as well as to explain physical and geometrical problems of various branches of engineering and able to calculate both real and complex forms of the Fourier series for standard periodic waveforms and convert from real-form Fourier series to complex form and vice-versa. |
| C02 | Able to apply the knowledge of complex analysis in signal analysis and other field for convenient description for periodically varying signals and also to identify the AC voltage which consist of two parameters, one is potential and other is angle(phase). Able to identify the isolated singularities of a function and determine whether they are removable, poles, or essential. Compute innermost Laurent series at an isolated singularity, and determine the residue. Use the residue theorem to compute complex line integrals and real integrals. |
| C03 | Able to apply the knowledge of probability to determine the equipment lifestyle, to know the best time to take plant or asset off-line for prevention, to determine the mean time of the failure of the device |
| CO4 | Able to apply the knowledge of ODE and PDE in various electrical problems like to determine the inductance in analog circuit and Expose the student to some special functions fundamental to engineering specifically Gamma, Beta, Bessel and Legendre. |

**PSO:**

**PSO1:**Ability to Identify, Formulate & Solve problems of basics of Electronics & Communication Engineering and to apply them to various areas like Analog & digital Circuits, Signal & systems, Communication, VLSI, Embedded System etc.

**PSO2:**Ability to design the systems of Electronics & Communication Engineering using advanced hardware and software tools with analytical skills to achieve the Soceital needs.

**PSO3:** Knowledge of social & environmental awareness along with ethical responsibility to achieve a successful career addresses the real world applications using optimal resources as an entrepreneur.

Mapping with CO with PSO

|  |  |  |  |
| --- | --- | --- | --- |
|  | PSO1 | PSO2 | PSO3 |
| CO1 | 3 | 2 | 1 |
| CO2 | 3 | 1 | 1 |
| CO3 | 3 | 1 | 3 |
| CO4 | 3 | 3 | 2 |
| AVG OF M302 | 3 | 1.75=2 | 1.75=2 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| COs | Class test (T1)  (30) | Slot test-1 (T2) (30) | Assignment  (T3) (30) | Slot test-2 (T4) (30) |
| CO1 | Q1,Q2, Q3 | Q1,Q2,Q3 | Q1 | - |
| CO2 | - | Q4,Q5,Q6 | Q2 | - |
| CO3 | Q4,Q5 | - | Q3 | Q1,Q2,Q3 |
| CO4 | - | - | Q4 | Q4,Q5,Q6 |

**CO attainment for a course ES 101:**

Target level 1: 60% students must score 60% and above

Target level 2: 70% students must score 60% and above

Target level 3: 80% students must score 60% and above

Total number of student for the batch 2012-2016 in 2nd year=141

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Course outcome | Avg. grading on scale of 3 | Distribution % | | |
| 3 | 2 | 1 |
| CO1 |  | 85/141=60.28% |  |  |
| CO2 |  | 90/141=63.8% |  |  |
| CO3 |  | 92/141=65.25% |  |  |
| CO4 |  | 87/141=61.7% |  |  |

|  |  |  |
| --- | --- | --- |
| CO and PO Scale | 3 | Strongly Related |
| 2 | Moderately Related |
| 1 | Low |

CO achieved if percentage (%) of students is greater than or equal to 60

|  |  |  |
| --- | --- | --- |
| Course outcomes | % of students achieved CO | CO result (achieved) (Y/N) |
| CO1 | 60.28% | Y |
| CO2 | 63.8% | Y |
| CO3 | 65.25% | Y |
| CO4 | 61.7% | Y |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CO** | **Statement** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
| M302.1 | Able to apply the knowledge of Fourier Series and Fourier Transform in various engineering problems as well as to explain physical and geometrical problems of various branches of engineering and able to calculate both real and complex forms of the Fourier series for standard periodic waveforms and convert from real-form Fourier series to complex form and vice-versa. | 3 | 3 | 2 | 2 | - | - | - | - | 2 | - | - | 3 |
| M302.2 | Able to apply the knowledge of complex analysis in signal analysis and other field for convenient description for periodically varying signals and also to identify the AC voltage which consist of two parameters, one is potential and other is angle(phase) Able to identify the isolated singularities of a function and determine whether they are removable, poles, or essential. Compute innermost Laurent series at an isolated singularity, and determine the residue. Use the residue theorem to compute complex line integrals and real integrals. | 3 | 2 | 2 | 2 | - | - | - | - | 1 | - | - | 3 |
| M302.3 | Able to apply the knowledge of probability to determine the equipment lifestyle, to know the best time to take plant or asset off-line for prevention, to determine the mean time of the failure of the device | 3 | 2 | 2 | 2 | - | - | - | - | 3 | - | - | 3 |
| M302.4 | Able to apply the knowledge of ODE and PDE in various electrical problems like to determine the inductance in analog circuit and Expose the student to some special functions fundamental to engineering specifically Gamma, Beta, Bessel and Legendre. | 3 | 2 | 2 | 3 | - | - | - | - | 2 | - | - | 3 |
| M 302 | | **3** | **3** | **2** | **2** | **-** | **-** | **-** | **-** | **2** | **-** | **-** | **3** |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Course | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| M 302 | 3 | 3 | 2 | 2 | - | - | - | - | 2 | - | - | 3 |

Result of attainment of POs (CIE)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Course | COs | CO Attainment | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| M 302 | CO1 | 60.28% | 60.28% | 60.28% | 40.19% | 40.19% | - | - | - | - | 40.19% | - | - | 60.28% |
| CO2 | 63.8% | 63.8% | 42.5% | 42.5% | 42.5% | - | - | - | - | 21.27% | - | - | 63.8% |
| CO3 | 65.25% | 65.25% | 43.5% | 43.5% | 43.5% | - | - | - | - | 65.25% | - | - | 65.25% |
| CO4 | 61.7% | 61.7% | 41.13% | 41.13% | 61.7% | - | - | - | - | 41.13% | - | - | 61.7% |
| AVG of  M 302 |  |  | 62.75% | 46.85% | 41.8% | 46.98% | - | - | - | - | 41.96% | - | - | 62.75% |

Result of POs (SEE: Semester End Examination )

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| SL No. | Course | % of students achieved >=60% | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| 1 | M302 | 40.43% | 40.43% | 40.4% | 26.9% | 26.9% | - | - | - | - | 26.9% | - | - | 40.4% |

**CO-PSO mapping**

|  |  |  |  |
| --- | --- | --- | --- |
|  | PSO1 | PSO2 | PSO3 |
| CO1 | 3 | 2 | 1 |
| CO2 | 3 | 1 | 1 |
| CO3 | 3 | 1 | 3 |
| CO4 | 3 | 3 | 2 |
| AVG OF M 302 | 3 | 1.75=2 | 1.75=2 |

**Result of attainment of PSOs (CIE) ( NB : The following table to be generated considering mapping of COs with PSOs)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Course | COs | CO Attainment | PSO1 | PSO2 | PSO3 |
| M 302 | CO1 | 60.28% | 60.28/% | 40.19% | 20.09% |
| CO2 | 63.8% | 63.8% | 21.26% | 21.26% |
| CO3 | 65.25% | 65.25% | 21.75% | 65.25% |
| CO4 | 61.7% | 61.7% | 61.7% | 41.13% |
| AVG of M 302 |  |  | 62.75% | 36.22% | 36.93% |

**Result of attainment of PSOs (SEE: Semester End Examination) ( NB : The following table to be generated considering mapping of COs with PSOs)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| SL No. | Course | % of students achieved >=60% | PSO1 | PSO2 | PSO3 |
| 1 | M302 | 40.43% | 40.43% | 26.95% | 26.95% |