|  |  |  |
| --- | --- | --- |
|  | Lecture Notes | 11th July 2023 |

**=======================================================**

* Fourier analysis
* Fourier series

**-----------------------------------------------------------------------------------------------------------------------------**

**Theory**:

The Taylor Series of a function at exists if is smooth at .

Similarly, the Fourier Series of a function exists if is **piecewise continuous**.

Let be a piecewise continuous function on interval

The Fourier Series of is:

where,

**-----------------------------------------------------------------------------------------------------------------------------**

**Solve the following**:

Example 1:

**-----------------------------------------------------------------------------------------------------------------------------**

Example 2:

**-----------------------------------------------------------------------------------------------------------------------------**

Example 3:

**-----------------------------------------------------------------------------------------------------------------------------**

**Solve the following**:

Example 1:

**-----------------------------------------------------------------------------------------------------------------------------**

Example 2:

**-----------------------------------------------------------------------------------------------------------------------------**

Example 3:

**-----------------------------------------------------------------------------------------------------------------------------**