Date: 24/4/2019

**Summary Report on WIT & WIL**

**(Daily Report)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name of the Faculty: D. Swarnakar** | | | | **Name of Subject: LAODE&LT** |
| **Class/Section: I B.Tech. II Sem/CSE-A&D** | | | | |
|  | Grid Reference No.: | | 6.2.1 | | |
|  | Scenario Reference No.  (Mapping with Syllabus) | | 6 | | |
|  | Topic covered in every class | | Higher Order ODE with variable coefficients  Power Series | | |
|  | **Brief write-up (500 words) for every class: Method:**  The power series method will give solutions only to [initial value problems](https://en.wikipedia.org/wiki/Initial_value_problem) (opposed to [boundary value problems](https://en.wikipedia.org/wiki/Boundary_value_problem)), this is not an issue when dealing with linear equations since the solution may turn up multiple linearly independent solutions which may be combined (by [superposition](https://en.wikipedia.org/wiki/Superposition_principle)) to solve boundary value problems as well. A further restriction is that the series coefficients will be specified by a nonlinear recurrence (the nonlinearities are inherited from the differential equation).In order for the solution method to work, as in linear equations, it is necessary to express every term in the nonlinear equation as a power series so that all of the terms may be combined into one power series.    L = d d x [ ( 1 − x 2 ) d d x ] + l ( l + 1 ) {\displaystyle L={d \over dx}[(1-x^{2}){d \over dx}]+l(l+1)\,} | | | | |
|  | Relevant additional illustration if any: |  | | | |
|  | Video Links/ Web Links if any: | <https://www.youtube.com/watch?v=SS6bniyB7rw> | | | |
|  | Signature of Repository Administrator: |  | | | |