

# Dayanand Science College Latur

## E-Contents (Video Lectures)

### Mathematics

Class: M. Sc. I Year (Sem-I)

Name of Paper: Ordinary Differential Equation

Sub: Mathematics

Paper No: III

SRTMUN, SPPU, MU, KUD, AMU, BAMU, NMU, SGBAU etc. Universities

Curriculums

Links of Quality Video Lectures for UG, PG: Dr. Sidheshwar Bellale

Director, Mathematics Research Centre, DSC, Latur

| Lect. No. | Name of Units / Articles              | Video Lecture Link  |
|-----------|---------------------------------------|---|
|           | <b>Unit-I</b>                         |   |
| <b>I</b>  | <b>Unit-I,II,III,IV- All</b>          | <a href="https://www.youtube.com/playlist?list=PL7TANb4Sj71pwJLWD_ggSURl_83NFYUEr">https://www.youtube.com/playlist?list=PL7TANb4Sj71pwJLWD_ggSURl_83NFYUEr</a> |
| 1         | Syllabus and Pattern                  | <a href="https://youtu.be/825Jx7dKDoY">https://youtu.be/825Jx7dKDoY</a>   |
| 2         | Introduction Linear Equations         | <a href="https://youtu.be/rxgQkXoN3c4">https://youtu.be/rxgQkXoN3c4</a>   |
| 3         | Methods for the Solution D.E.         | <a href="https://youtu.be/mdXFHkQzuRg">https://youtu.be/mdXFHkQzuRg</a>   |
| 4         | Homogeneous Differential Equation     | <a href="https://youtu.be/IHwk8Hx6Y_I">https://youtu.be/IHwk8Hx6Y_I</a>   |
| 5         | Linear Equation                       | <a href="https://youtu.be/cvSQFiYszB8">https://youtu.be/cvSQFiYszB8</a>   |
| 6         | Examples On L D E                     | <a href="https://youtu.be/wfgCSUhJfFA">https://youtu.be/wfgCSUhJfFA</a>   |
| 7         | Problems Associated Differential Eq.  | <a href="https://youtu.be/EvyGyF7NtuM">https://youtu.be/EvyGyF7NtuM</a>   |
| 8         | General Linear Differential Eq        | <a href="https://youtu.be/mhBYyxjdJGI">https://youtu.be/mhBYyxjdJGI</a>   |
| 9         | Ex. General Linear Differential Eq.   | <a href="https://youtu.be/xZBe8vhvPrI">https://youtu.be/xZBe8vhvPrI</a>   |
| 10        | Linear Equations with Constant Coeff  | <a href="https://youtu.be/OWtk7kIU33k">https://youtu.be/OWtk7kIU33k</a>   |
| 11        | Problems on nth order L.D.E.          | <a href="https://youtu.be/KCDFuoVarqQ">https://youtu.be/KCDFuoVarqQ</a>   |
| 12        | Problems on nth order L.D.E           | <a href="https://youtu.be/PzemjCZcmVM">https://youtu.be/PzemjCZcmVM</a>   |
| 13        | Initial Value Problems                | <a href="https://youtu.be/t3DFIL6ESzA">https://youtu.be/t3DFIL6ESzA</a>   |
| 14        | Initial Value Problems                | <a href="https://youtu.be/62H6zATzKZA">https://youtu.be/62H6zATzKZA</a>   |
| 15        | Linear Dependence and Independence    | <a href="https://youtu.be/rNCWO7oa2n8">https://youtu.be/rNCWO7oa2n8</a>   |
| 16        | Theorems on Linearly Independent Sol. | <a href="https://youtu.be/Ag08337EVro">https://youtu.be/Ag08337EVro</a>   |
| 17        | Non Homogeneous Equation              | <a href="https://youtu.be/9qOLtmKWOyE">https://youtu.be/9qOLtmKWOyE</a>   |
| 18        | Examples Non Homogeneous Equations    | <a href="https://youtu.be/79JmD5n8qx8">https://youtu.be/79JmD5n8qx8</a>   |
| 19        | Examples Non Homogeneous Equations    | <a href="https://youtu.be/1wBar3ofS9A">https://youtu.be/1wBar3ofS9A</a>   |
| 20        | Examples Non Homogeneous Equations    | <a href="https://youtu.be/G2J6-y_Yyic">https://youtu.be/G2J6-y_Yyic</a>   |
| 21        | Examples Homogeneous Eq. of Order     | <a href="https://youtu.be/bGKgMOiAYR0">https://youtu.be/bGKgMOiAYR0</a>   |
| 22        | Examples Homogeneous Eq. of Order     | <a href="https://youtu.be/Oae-iBlzL7g">https://youtu.be/Oae-iBlzL7g</a>   |
| 23        | Initial value problems of order n     | <a href="https://youtu.be/Z-JK10cXEOQ">https://youtu.be/Z-JK10cXEOQ</a>   |
| 24        | Initial value problems of order n     | <a href="https://youtu.be/W74DkOzR7Bs">https://youtu.be/W74DkOzR7Bs</a>   |
| 25        | Equations with Real Coefficient       | <a href="https://youtu.be/h0PmZrtxTq0">https://youtu.be/h0PmZrtxTq0</a>   |
| 26        | Non-homogeneous Equation of Order     | <a href="https://youtu.be/y42FYqQNCYY">https://youtu.be/y42FYqQNCYY</a>   |
| 27        | Non-homogeneous Equation of Order n   | <a href="https://youtu.be/9fGZEJTjSOQ">https://youtu.be/9fGZEJTjSOQ</a>   |
| 28        | Non-homogeneous Equation of Order n   | <a href="https://youtu.be/e6HKphxidco">https://youtu.be/e6HKphxidco</a>   |
| 29        | Non-homogeneous Equation of Order n   | <a href="https://youtu.be/g9Vyz1dzLEU">https://youtu.be/g9Vyz1dzLEU</a>   |
| 30        | Homogeneous Equation Variable Coeff.  | <a href="https://youtu.be/rdK2rdJPBMU">https://youtu.be/rdK2rdJPBMU</a>   |
| 31        | Wronskian and linear independence     | <a href="https://youtu.be/8uQUFLTGsCg">https://youtu.be/8uQUFLTGsCg</a>   |
| 32        | Reduction of the order of H.D.E       | <a href="https://youtu.be/vQuh5ouG8tw">https://youtu.be/vQuh5ouG8tw</a>   |

|    |  |   |
|----|--|---|
| 33 | Examples on Homogeneous Equation                   | <a href="https://youtu.be/T2EqrSKpS4E">https://youtu.be/T2EqrSKpS4E</a>   |
| 34 | Examples on reduction of the order                 | <a href="https://youtu.be/r5UFE_XhXHY">https://youtu.be/r5UFE_XhXHY</a>   |
| 35 | Examples on H. D. E. Variable Coef.                | <a href="https://youtu.be/KWtdDRG_OnM">https://youtu.be/KWtdDRG_OnM</a>   |
| 36 | Examples on H. D. E. Variable Coefficient          | <a href="https://youtu.be/73WITGgcofc">https://youtu.be/73WITGgcofc</a>   |
| 37 | The Non Homogeneous Equation                       | <a href="https://youtu.be/KLl1YYd8bGs">https://youtu.be/KLl1YYd8bGs</a>   |
| 38 | H. E. with Analytic Coefficient                    | <a href="https://youtu.be/O7f5SPqvSUQ">https://youtu.be/O7f5SPqvSUQ</a>   |
| 39 | The Legendre Equation                              | <a href="https://youtu.be/lncHJpAy8rE">https://youtu.be/lncHJpAy8rE</a>   |
| 40 | Linear equation regular Singular Point             | <a href="https://youtu.be/9hmLNNnE0N9Q">https://youtu.be/9hmLNNnE0N9Q</a>   |
| 41 | The Euler Equation                                 | <a href="https://youtu.be/l1UMln4hoSw">https://youtu.be/l1UMln4hoSw</a>   |
| 42 | Second Order Equations                             | <a href="https://youtu.be/qgcuSCI9Bh4">https://youtu.be/qgcuSCI9Bh4</a>   |
| 43 | The Bessel Equation                                | <a href="https://youtu.be/nQBABtSsB0g">https://youtu.be/nQBABtSsB0g</a>   |
| 44 | Existence of solution FODE                         | <a href="https://youtu.be/9jK2I24IkuU">https://youtu.be/9jK2I24IkuU</a>   |
| 45 | Existence of solution FODE                         | <a href="https://youtu.be/pHeL8Cam2nw">https://youtu.be/pHeL8Cam2nw</a>   |
| 46 | Examples on Separation variables                   | <a href="https://youtu.be/aiy0-HWH53w">https://youtu.be/aiy0-HWH53w</a>   |
| 47 | Examples on Separation variables                   | <a href="https://youtu.be/NPa2I6hNNGA">https://youtu.be/NPa2I6hNNGA</a>   |
| 48 | Exact Equation                                     | <a href="https://youtu.be/b3jDbLfmOGI">https://youtu.be/b3jDbLfmOGI</a>   |
| 49 | Theorems on Exact Equation                         | <a href="https://youtu.be/M8zTJBjW3jo">https://youtu.be/M8zTJBjW3jo</a>   |
| 50 | Successive Differentiation                         | <a href="https://youtu.be/9XAUNoPQjTI">https://youtu.be/9XAUNoPQjTI</a>   |
| 51 | Example Successive Differentiation                 | <a href="https://youtu.be/LPIWDhrlwHs">https://youtu.be/LPIWDhrlwHs</a>   |
| 52 | The Lipschitz Condition                            | <a href="https://youtu.be/D7_0LsWI4Fc">https://youtu.be/D7_0LsWI4Fc</a>   |
|    |  |   |
|    | <b>Syllabus completed</b>                          |   |
|    |  |   |
|    | <b>Basics for Perfection in Mathematics</b>        |   |
| 1  | Basic of Differential Equation                     | <a href="https://www.youtube.com/playlist?list=PL7TANb4Sj71rA-8sVw-YA_Y9CLQkGvMpg">https://www.youtube.com/playlist?list=PL7TANb4Sj71rA-8sVw-YA_Y9CLQkGvMpg</a> |
| 2  | Basic of Integration                               | <a href="https://www.youtube.com/playlist?list=PL7TANb4Sj71rJEW9jCLJmiG0Q_t-QUhbf">https://www.youtube.com/playlist?list=PL7TANb4Sj71rJEW9jCLJmiG0Q_t-QUhbf</a> |
| 3  |  |   |
| 4  | For All Lectures Visit                             |   |
| 5  | Basics for Real Analysis                           | <a href="https://www.youtube.com/playlist?list=PL7TANb4Sj71okEsD3aX8ABnhxX5XfwXcU">https://www.youtube.com/playlist?list=PL7TANb4Sj71okEsD3aX8ABnhxX5XfwXcU</a> |
| 6  | LIVE LECTURES<br>8:00am-9am (Mon to Friday)        | <a href="https://www.youtube.com/channel/UC25Hwz1jT_gwAJU4YEiO6Rg/live">https://www.youtube.com/channel/UC25Hwz1jT_gwAJU4YEiO6Rg/live</a>                       |
| 7  | For Updated Quality Video Links<br>Register/ Visit | <a href="https://www.youtube.com/channel/UC25Hwz1jT_gwAJU4YEiO6Rg">https://www.youtube.com/channel/UC25Hwz1jT_gwAJU4YEiO6Rg</a>                                 |