

# Venus Group Of Educational & Research Institutes, Bahanaga, Balasore

## LESSONPLAN

|                                           |                                               |
|-------------------------------------------|-----------------------------------------------|
| <b>Subject Name-Theory of Machine</b>     | <b>Branch- Mechanical Engineering</b>         |
| <b>Faculty Name- Er. Biswajit Mohanty</b> | <b>Semester- 4<sup>th</sup></b>               |
| <b>Session- 2024-2027</b>                 | <b>Semester From-22/12/2026 to 18/04/2026</b> |

| <b>S/N</b> | <b>Module</b> | <b>Topic(s)</b>                                                                                        | <b>Period/<br/>Hours</b> |
|------------|---------------|--------------------------------------------------------------------------------------------------------|--------------------------|
| 1.         | I             | Mechanism: Basic Kinematic concepts and definitions                                                    | 1                        |
| 2.         | I             | Mechanism, link, kinematic pair, classification of kinematic pairs, degree of freedom, kinematic chain | 2-3                      |
| 3.         | I             | Binary ternary and quaternary joints and links                                                         | 4-5                      |
| 4.         | I             | Tutorial (SMART CLASS)                                                                                 | 6                        |
| 5.         | I             | Degrees of freedom for plane mechanism, grubler' sequeation                                            | 7                        |
| 6.         | I             | Inversion of mechanism, four bar chains and their inversions                                           | 8                        |
| 7.         | I             | Single slider crank chain, double slider crank chain and their inversion.                              | 9                        |
| 8.         | I             | Tutorial (SMART CLASS)                                                                                 | 10                       |
| 9.         | II            | Friction of a screw and nut, square threaded screw, V-threaded screw, pivot and collar                 | 11-13                    |
| 10.        | II            | Friction circle, friction axis                                                                         | 14                       |
| 11.        | II            | Friction clutches, transmission of power by single plate                                               | 15                       |
| 12.        | II            | Multi plate and cone clutches                                                                          | 16                       |
| 13.        | II            | Gear trains: simple train, compound train, reverted train, epicyclic train and their application       | 17-19                    |

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|-----|-----|------------------------------------------------------------------------------------------------------------------------|-------|
| 14. | II  | Tutorial(SMART CLASS)                                                                                                  | 20    |
| 15. | III | Toothed gears: Theory of shape and action of tooth properties<br>methods of generation of standard Tooth profiles      | 21-22 |
| 16. | III | Standard proportions                                                                                                   | 23    |
| 17. | III | Interference and Under-cutting, methods of Eliminating<br>Interference, Minimum numbers of teeth to avoid interference | 24-26 |
| 18. | IV  | Governors: Centrifugal Governors-watt and Porter Governors                                                             | 27    |
| 19. | IV  | Spring loaded Governor-Hartnell Governor                                                                               | 28    |
| 20. | IV  | Sensitiveness, stability , Isochronism ,Hunting                                                                        | 29    |
| 21. | IV  | Governor effort and power, curves of controlling force                                                                 | 30    |
| 22. | IV  | Tutorial(SMART CLASS)                                                                                                  | 31    |