| GANESH INSTITUTE OF ENGINEERING AND TECHNOLOGY, POLYTECHNIC | | | | | | | |
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| DEPARTMENT OF MECHANICAL ENGINEERING | | | | | | | |
| NAME: RANAJIT SAMANTARAY | | | | | | LESSON PLAN CUM PROGRESS REPORT | |
| SUBJECT: ENGINEERING MECHANICS | | | | SEMESTER:2ND | | BRANCH: MECHANICAL ENGINEERING | |
| LECTURE NO. | CO | BTL | TOPIC TO BE COVERED | WEB REFERENCE IF ANY | PLAN DATE | ACTION DATE | REVIEW BY HOD |
| 1 | CO1 | 1 | **Unit – I Basics of mechanics and force system:** Significance and relevance of Mechanics | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 12-01-2026 | | |
| 2 | CO1 | 1 | Significance and relevance of Applied mechanics, Statics, Dynamics | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 13-01-2026 | | |
| 3 | CO1 | 1 | Space, time, mass, particle, flexible body and rigid body | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 15-01-2026 | | |
| 4 | CO1 | 2 | Scalar and vector quantity, Units of measurement (SI units) - Fundamental units and derived units. | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 19-01-2026 | | |
| 5 | CO1 | 2 | Force – unit, representation as a vector, Bow's notation, characteristics and effects of a force | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 20-01-2026 | | |
| 6 | CO1 | 3 | Principle of transmissibility of force | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 21-01-2026 | | |
| 7 | CO1 | 3 | Force system and its classification | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 22-01-2026 | | |
| 8 | CO1 | 3 | Resolution of a force - Orthogonal components of a force | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 27-01-2026 | | |
| 9 | CO1 | 2 | moment of a force | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 28-01-2026 | | |
| 10 | CO1 | 2 | Varignon's Theorem | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 29-01-2026 | | |
| 11 | CO1 | 1 | Composition of forces – Resultant | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 02-02-2026 | | |
| 12 | CO1 | 1 | Numerical Examples | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 03-02-2026 | | |

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| 13 | CO1 | 1 | Non-Concurrent force system | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 04-02-2026 | | |
| 14 | CO1 | 2 | Numerical Examples | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 05-02-2026 | | |
| 15 | CO1 | 1 | Analytical method for determination of resultant for concurrent, non-concurrent and parallel co-planar force systems | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 09-02-2026 | | |
| 16 | CO1 | 2 | Numerical Examples | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 10-02-2026 | | |
| 17 | CO1 | 1 | Numerical Examples | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 11-02-2026 | | |
| 18 | CO1 | 2 | Law of triangle | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 12-02-2026 | | |
| 19 | CO1 | 1 | Parallelogram law of forces. | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 16-02-2026 | | |
| 20 | CO1 | | Numerical Examples | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 17-02-2026 | | |
| 21 | CO1 | 1 | Law of polygon of forces and examples ASSIGNMENT-1 | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 18-02-2026 | | |
| 22 | CO2 | 2 | **Unit– II Equilibrium:** Equilibrium and Equilibrant, Free body and Free body diagram | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 19-02-2026 | | |
| 23 | CO2 | 1 | Analytical methods of analysing equilibrium, Lami's Theorem – statement and explanation | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 23-02-2026 | | |
| 24 | CO2 | 2 | Numerical Examples | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 24-02-2026 | | |
| 25 | CO2 | 1 | Graphical methods of analysing equilibrium | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 25-02-2026 | | |
| 26 | CO2 | 2 | Types of beam | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 26-02-2026 | | |
| 27 | CO2 | 1 | Types of supports (simple, hinged, roller and fixed) | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 02-03-2026 | | |

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| 28 | CO2 | 2 | Types of loads acting on beam (vertical and inclined point load, uniformly distributed load, couple) | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 03-03-2026 | | |
| 29 | CO2 | 2 | Numerical Examples on Cantilever beam carrying a point load at the free end | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 05-03-2026 | | |
| 30 | CO2 | | Numerical Examples on Simply supported beam | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 09-03-2026 | | |
| 31 | CO2 | 3 | Numerical Examples on simply supported beam with overhanging | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 10-03-2026 | | |
| 32 | CO2 | 2 | Beam reaction graphically for simply supported beam subjected to vertical point loads only<br>ASSIGNMENT-2 | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 11-03-2026 | | |
| 33 | CO3 | 3 | **Unit– III Friction**:<br>Friction | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 12-03-2026 | | |
| 34 | CO3 | 3 | Relevance in Engineering | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 16-03-2026 | | |
| 35 | CO3 | 3 | Types of friction | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 17-03-2026 | | |
| 36 | CO3 | 3 | Laws of friction | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 18-03-2026 | | |
| 37 | CO3 | 1 | Limiting equilibrium | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 19-03-2026 | | |
| 38 | CO3 | 2 | Limiting friction, Normal reaction, Angle of friction | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 23-03-2026 | | |
| 39 | CO3 | 3 | Coefficient of friction, Angle of repose | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 24-03-2026 | | |
| 40 | CO3 | 3 | Equilibrium of a body on a rough horizontal plane | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 25-03-2026 | | |

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| 41 | CO3 | 1 | Numerical Examples | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 26-03-2026 | | |
| 42 | CO3 | 1 | Equillibrium of a body on a rough inclined plane | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 30-03-2026 | | |
| 43 | CO3 | 1 | Numerical Examples, ASSIGNMENT-3 | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 31-03-2026 | | |
| 44 | CO4 | 2 | **Unit– IV Centroid and centre of gravity** | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 02-04-2026 | | |
| 45 | CO4 | | Position of centroid or centre of gravity | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 06-04-2026 | | |
| 46 | CO4 | 1 | Centroid of geometrical plane figures | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 07-04-2026 | | |
| 47 | CO4 | 2 | NUMERICAL EXAMPLES | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 08-04-2026 | | |
| 48 | CO4 | 2 | Centre of gravity of simple solids | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 09-04-2026 | | |
| 49 | CO4 | 2 | Numerical Examples, ASSIGNMENT-4 | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 13-04-2026 | | |
| 50 | CO4 | 1 | **Unit – V Simple Lifting Machine:** Advantages, Disadvantages, Applications | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 15-04-2026 | | |
| 51 | CO4 | 2 | Relation between M.A, V.R & Efficiency | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 16-04-2026 | | |
| 52 | CO5 | | Reversible machine, Conditions for reversibility, Non-reversible machines, Law of machine, | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 20-04-2026 | | |
| 53 | CO5 | 1 | Machine friction, Numerical Examples | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 21-04-2026 | | |
| 54 | CO5 | 2 | Simple Wheel & Axle, Differential Wheel & Axle, Numerical Examples | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 22-04-2026 | | |
| 55 | CO5 | 2 | Worm and Worm Wheel, Numerical Examples | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 23-04-2026 | | |
| 56 | CO5 | 2 | Simple screw jack, Numerical Examples | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 27-04-2026 | | |

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| 57 | **CO5** | **1** | Single purchase crab winch, Numerical Examples | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 28-04-2026 | | |
| 58 | **CO5** | **1** | Double purchase crab winch, Numerical Examples | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 29-04-2026 | | |
| 59 | **CO5** | **2** | Weston's differential pulley block, Numerical Examples | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 30-04-2026 | | |
| 60 | **CO5** | | Geared pulley block, Numerical Examples ASSIGNMENT-5 | https://youtube.com/playlist?list=PLwyfii0Vj1Tlo6D73_KXFL8gOxkKQC8cy&si=VSqJcTcWUZStuC7v | 05-05-2026 | | |
| 61 | | | **REVISION** | | 06-05-2026 | | |
| 62 | | | **ASSIGNMENT SUBMISSION** | | 07-05-2026 | | |

**PRINCIPAL** **FACULTY** **HOD, MECHANICAL ENGG.**