

Notes for ME27000 - Basic Mechanics I

Shubham Saluja Kumar Agarwal

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These are lecture notes for fall 2024 ME27000 at Purdue as taught by Professor Fabio Semperlotti. Modify, use, and distribute as you please.

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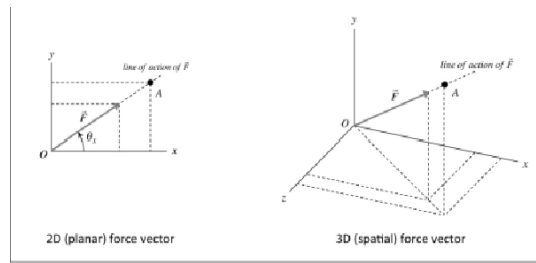
Significant Digits 2

Vectors, units, dimensions, significant digits

Vectors

Two main types of quantities:

- SCALAR: real value quantities
- VECTOR: defined by magnitude and direction.



There are also categories of vectors:

- Fixed vector: the application point of the vector matters.
- Static vector: the application point of the vector can slide along the line of action to the same effect.

Most of the work in this course revolves around Newton's Laws, and their effects on and as vectors.

Units and dimensions

Dimension: qualitative characterization of physical quantity, such as Force.

Unit: scale for a quantitative characterization of the physical quantity, such as Newton.

The systems used for units are the SI, and British (imperial).

Significant Digits

The level of accuracy of numerical values dealt with in relevant mathematical operations.