

**Lectures 11, 12 and 13 (27th, 30th of October and 1st of November 2012) -
outline**

Comments and questions should be sent to Berry Groisman, bg268@

3 Rotation of Rigid Bodies**3.1 Angular Velocity and Angular Momentum**

We have considered a rotational part of motion of a rigid body. We introduced two reference frames: the space frame $\{\tilde{\mathbf{e}}_a\}$ and a frame embedded within the body - the body frame $\{\mathbf{e}_a\}$. These two frames are related by a 3×3 matrix R_{ab} as follows

$$\mathbf{e}_a = R_{ab} \tilde{\mathbf{e}}_b. \quad (1)$$

Using matrix R we derived instantaneous angular velocity with components in the body frame.

3.2 Tensor of Inertia

We introduced Tensor of Inertia and discussed its properties.