**speech title**  : mechanical engineering applications in the automotive industry
        from the theoretical knowledge to practical solutions

**speaker**   : Ilias Papadimitriou

**when**    : 17.10.2023 16:00

**where**    : department of mechanical Engineering AUTH

**language**   : Greek

The challenge in the automotive industry has grown massively in recent years. The $CO_2$ problematic leads the OEM's in electro-mobility with all the associated difficulties, such as developing new platforms, batteries, electric motors, and high-performance electronics. The bottleneck in chip production is an example of the massive change. At the same time, the issue of sustainability, recycling and material availability becomes essential. Material availability will play an important role in the future for rare-earth metals and common alloys such as aluminium alloys. An example is the availability of primary aluminium alloys, which the total production (ca. 30% of demand in Europe) has already been booked for the next few years. The mechanical engineer will be confronted with classic problems and new topics in the future. In the lecture, three selected topics will be discussed. A classical one from the field of **strength of materials** and two new topics, **3D-metal printing** and the use of **artificial intelligence** in mass production.

*Mr. Ilias Papadimitriou received a diploma from the mechanical engineering department of Aristoteles University of Thessaloniki in 1993. After his studies, he started his career 1995 at AVL List in Graz-Austria in the area of Simulation of engine dynamics and fatigue analysis. In 2000, he joined the R&D Department of Ferrari-Maranello in the F1-engine development department as responsible for the crank train development of the F1-engine. In 2005, he moved to Ferrari road vehicles, involved in developing engine dynamics and powertrain vehicle integration. In 2010, he joined the R&D department of GF Casting Solution in Schaffhausen-Switzerland as a technical expert of powertrain projects in production. In the last years, he has been involved in data analytics projects and is responsible for the implementing of artificial intelligence methods for quality optimization in production.*