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| Title of Module: | SHEET FORMING TECHNOLOGY |
| Code: | TME7005 |
| Total time: | 60 hours |
| Credit points: | 4 |
| Level: | MSc and PhD |
| Prerequisite: | none |
| Co-requisite: | none |

AIMS:

To enable students to understand the general aspects of the sheet forming process. Encourage understanding of the process technological parameters describing the input variables correlation with the output parameters. Outline of the process. Advantages and disadvantages compared to other studied processes. Applications in the field of research and industry.

SYLLABUS:

Introduction. General aspects of sheet metal forming: Formability, friction / lubrication in forming, residual stresses in formed parts, forming steels sheets, basic modes of strain (deep drawing, plain strain and stretching). Sheet metal characterization: fundamental tests to obtain the mechanical properties (yield strength, ultimate tensile strength and rupture strength, true strains, strain hardening coefficient (n), resistance coefficient (k) and coefficient of anisotropy (R Lankford), practical tests which aim to simulate in the laboratory the strains that the material will suffer on industrial scale (Erichsen, Olsen, Swift and Fukui tests) and evaluation tests of the strain severity which compares forming limit curves (FLC) carried out in the laboratory with the results obtained by experiments on industrial scale. Manufacturing processes for sheet metal stamping: Shearing technologies, Bending, Stamping and Stretching processes.

BIBLIOGRAPHY:

- Advanced Engineering Mathematics (9th edition), Erwin Kreyszig, John Wiley & Sons, 2006;
- Contemporary Linear Algebra, Howard Anton e Robert C. Busby, John Wiley & Sons, 2003;
- Elementary Differential Equations (9th edition), William E. Boyce e Richard C. DiPrima, John Wiley & Sons, 2008.

RESPONSIBLE CO-ORDINATOR:

Prof. Paulo Victor Prestes Marcondes.