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| **Course Name** | Engineering Ceramics | | | | | |
| **Course Code** | MatE 6312 | | | | | |
| **ECTS** | 6 | | | | | |
| **Status** | Elective | | | | | |
| **Weekly workload** | Lecture | Tutorial | Laboratory | | Project work | Home study |
| 3 | 3 | 2 | | 1 | 5 |
| **Course Objective** | Ceramic Engineering is the science and technology of creating objects from inorganic, non-metallic materials. | | | | | |
| **Course description:** | Engineering Ceramics uses basic principles from chemistry and physics to understand how to design new materials at the atomic level, then process these materials into useful forms. It introduces the interrelationships between the structure, properties, processing, design concepts, and applications of advanced ceramics. It also links fundamentals and fabrication requirements to a wide range of interesting engineering application examples.  Engineering ceramics are structured and functional ceramics used in applications differing from those employing classical utility ceramics such as brick, clinker, ovenware, porcelain, sanitary ceramics or tiles. These include oxidic, non-oxidic and mixed ceramics such as aluminum oxide, zirconium oxide, silicon carbide or lead zirconatetitanate, etc. | | | | | |
| **Semester:** | Year I Semester II | | | | | |
| **Prerequisite:** | None | | | | | |
| **Reference:** | 1. Fundamentals of Modern Manufacturing: Materials, Processes, and Systems, Mikell P. Groover. 2. Ceramic Materials: Science and Engineering, **Carter**, C. Barry, **Norton**, M. Grant 3. Introduction to Phase Equilibria in ceramics, Bergeron and Risbud 4. Modern Ceramic Engineering: Properties, Processing, and Use in Design, Fourth Edition, David Richerson, David W. Richerson, William Edward Lee. | | | | | |
| **Teaching Methodology and assessment strategy** | Lecture / Tutorial | | | | | |
| Exercise / Assignment | | | | | |
| Laboratory | | | | | |
| **Assessment / Evaluation** | Individual assignment / exercise | | | 10% | | |
| Laboratory work / report | | | 25% | | |
| Mid-term examination | | | 25% | | |
| Final examination | | | 40% | | |
| **Attendance requirement** | Minimum of 75% of lecture and 100% of laboratory/industrial visit | | | | | |