| PROCESS SIMULATIONS OF ADDITIVE MANUFACTURING | | | | | | | | |
|---|--|---|--|--|--|--|--|--|
| 1 | Course Title: | PROCE | S SIMULATIONS OF ADDITIVE MANUFACTURING | | | | | |
| 2 | Course Code: | EIM5004 | 4 | | | | | |
| 3 | Type of Course: | Optional | | | | | | |
| 4 | Level of Course: | Second | Cycle | | | | | |
| 5 | Year of Study: | 1 | | | | | | |
| 6 | Semester: | 2 | | | | | | |
| 7 | ECTS Credits Allocated: | 6.00 | | | | | | |
| 8 | Theoretical (hour/week): | 3.00 | | | | | | |
| 9 | Practice (hour/week): | 0.00 | | | | | | |
| 10 | Laboratory (hour/week): | 0 | | | | | | |
| 11 | Prerequisites: | None | | | | | | |
| 12 | Language: | Turkish | | | | | | |
| 13 | Mode of Delivery: | Face to | face | | | | | |
| 14 | Course Coordinator: | Prof. Dr. | NECMETTIN KAYA | | | | | |
| 15 | Course Lecturers: | | | | | | | |
| 16 | Contact information of the Course Coordinator: | Prof. Dr. Necmettin Kaya Bursa Uludağ Üniversitesi, Mühendislik Fak. Makine Müh. Bölümü Görükle Bursa Tel:224.2941979 Eposta: necmi@uludag.edu.tr | | | | | | |
| 17 | Website: | | | | | | | |
| 18 | Objective of the Course: | Determir Additive | nation of problems that may arise during product printing in Manufacturing methods by modeling and simulations | | | | | |
| 19 | Contribution of the Course to Professional Development: | As a result of foreseeing the problems that may arise with additive manufacturing process simulations during the product design and design verification phase, the students will be able to contribute to the company they work in terms of time and cost. | | | | | | |
| 20 | Learning Outcomes: | | | | | | | |
| | | 1 | Ability to model additive manufacturing processes | | | | | |
| | | 2 | Ability to design manufacturable products with design verification | | | | | |
| | | 3 | Gaining the ability to optimize production process parameters | | | | | |
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| 21 | Course Content: | | | | | | | |
| | | Co | burse Content: | | | | | |
| vveek | | | Practice | | | | | |
| 1 | Additive Manufacturing Methods | | | | | | | |
| 2 | Product design (CAD) | | | | | | | |

| | | | L | .0: L | .earr | ning C |)bjec | tives | S | PQ: P | rogra | ım Qu | alifica | tions | ; | | |
|---|--|------|-------|---------------------|--------|--------|--|--------|----------|-----------------|------------|-------|---------------------------|----------|--------|-------|------|
| OK3 | 0 | | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ä | U | | - | - | 0 | о С | <u> </u> | | <u> </u> | <u> </u> | | | С С | о С | | | |
| ÖK2 | 0 | _ | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ÖK1 | 4 | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | PC | 21 | PQ2 | PQ3 | PQ4 | PQ5 | PQ6 | PQ7 | PQ | 8 PQ9 | PQ1 0 | PQ11 | PQ12 | PQ1 3 | PQ14 | PQ15 | PQ16 |
| 25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS | | | | | | | | | | | | | | | | | |
| 20130 | | מית | | | тріг | | | | | | | | | | | | |
| I otal w | al work load/ 30 hr | | | | | | _ | | | | | | 5.93 6.00 | | | | |
| Total W | ork Lo | ad | | | | | | | | 178. | | | | | 178.00 | | |
| Final Ex | xams | a -' | | | | | | | | 1 | | | 36.00 | | | 36.00 | |
| Others | S | | | | | | | | 0 | | | 0.00 | | | 0.00 | | |
| Midtern | erm exams | | | | | | | | 0 | | | 0.00 | 0.00 | | | 0.00 | |
| Field St | d Studies | | | | | | | | 0 0.00 | | | | 0.00 | | | | |
| PRHEE | Reference | | | | | | | | | | | 36.00 | | | 36.00 | | |
| Homew | tomeworks | | | | | | | | 1 | | | 36.00 | | | 36.00 | | |
| Setastudy and preperation | | | | | | 1 | 100400 | | | 2.00 | | | 28.00 | | | | |
| Practica | Practicals/Labs | | | | | | | 0 0.00 | | | | 0.00 | | | | | |
| THEEPERCArade | | | | | | | 14 3 | | | 3.00 | 3.00 42.00 | | | | | | |
| Activites | | | | | | | Number | | | Duration (hour) | | | Total Work Load (hour) | | | | |
| Home work-project 1 | | | | | | 4 | 40.00 | | | | | | | | | | |
| Quiz | | | | | | | 0 | | 0. | 0.00 | | | | | | | |
| Midterm | Midterm Exam | | | | 0 | | 0 | 0.00 | | | | | | | | | |
| TERM L | TERM LEARNING ACTIVITIES | | | | N R | UMBE | W | WEIGHT | | | | | | | | | |
| 23 | Asses | mei | nt | | | | | | | | | | | | | | |
| 22 | Textbooks, References and/or Other | | | | | Н | Help, tutorial and websites of simulation software | | | | | | | | | | |
| 14 | Interpretation of results | | | | | | | | | | | | | | | | |
| 13 | Interpretation of results | | | | | | | | | | | | | | | | |
| 12 | Simulations of BJ method | | | | | | | | | | | | | | | | |
| 11 | Simulations of DED method | | | | | | Т | | | | | | | | | | |
| 10 | Simulations of PBF method | | | | | | | | | | | | | | | | |
| 9 | Modeling Methods | | | | | | | | | | | | | | | | |
| 8 | Additive Manufacturing Simulation Steps | | | | | | | | | | | | | | | | |
| 7 | Additive Manufacturing Production problems | | | | | | | | | | | | | | | | |
| 6 | Metal additive manufacturing materials | | | | | | | | | | | | | | | | |
| 5 | Mechanical properties of products | | | | | | | | | | | | | | | | |
| 3 | Metal Additive Manufacturing Methods | | | | | | | | | | | | | | | | |
| 2 | Produc | h tr | esian | $(C \Delta \Gamma)$ |)) | | | | | | | | | | | | |

| Contrib | 1 very low | 2 low | 3 Medium | 4 High | 5 Very High |
|---------|------------|-------|----------|--------|-------------|
| ution | | | | | |
| Level: | | | | | |