

Proposal for online Design for Additive Manufacturing course

Teachers: Prof Richard Bibb, Dr Patrick Pradel

Total hrs: 24

Target: Postgraduate research students

Weeks: 6

Period: start 21st Sep., end 26th Oct.

Lecture: 1hr per week

Seminars: 2hrs per week

N' students: 20-30

Assessment: Final presentation 10 min + 5 min feedback and questions

Coursework: Design task. Design a structure for a 4-motor drone for Additive Manufacturing

Lecture content (1 hr):

Week 1. Process selection for Additive Manufacturing: when AM is appropriate, what are the drivers and cost constraints. Early-stage conceptual design, exploring possibilities, chose additive.

Week 2. Design strategies and tools for Additive Manufacturing: Design opportunities for Additive Manufacturing.

Week 3. Design limitations for Additive Manufacturing: design optimisation, costing.

Week 5. Case studies, examples, and future possibilities.

Week 6. Post-processing for Metal AM: Finishing operations, Residual stress, and support removal for metals.

Seminars content (2 hrs):

Week 1. Intro to Fusion 360 and generative design.

Week 2. Intro to Netfabb and lattice structures.

Week 3. Seminar mini-challenge simple bracket design it and show it next week.

Week 4. Seminar on the printing, scan strategy difference between borders and hatching.

Week 5. Design tutorial.

Week 6. Design tutorial.

Reading list

TBC