Digital Manufacturing in Aerospace:

Creating Project-Based Learning Opportunities for Aerospace Engineering Undergraduate Students

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Materials Education SYMPOSIA 2024 Symposia

Aim: To establish Additive Manufacturing Technologies and Digital Design Methodologies for Aerospace applications

Learning Objectives:

(i) Critically evaluate manufacturing technologies, processes and performance for use within Aerospace and other industrial sectors

(ii) Appropriately apply benchmarking techniques associated with Design for Manufacture

(iii) Critically evaluate design optimisation tools and approaches in developing complex and functional components

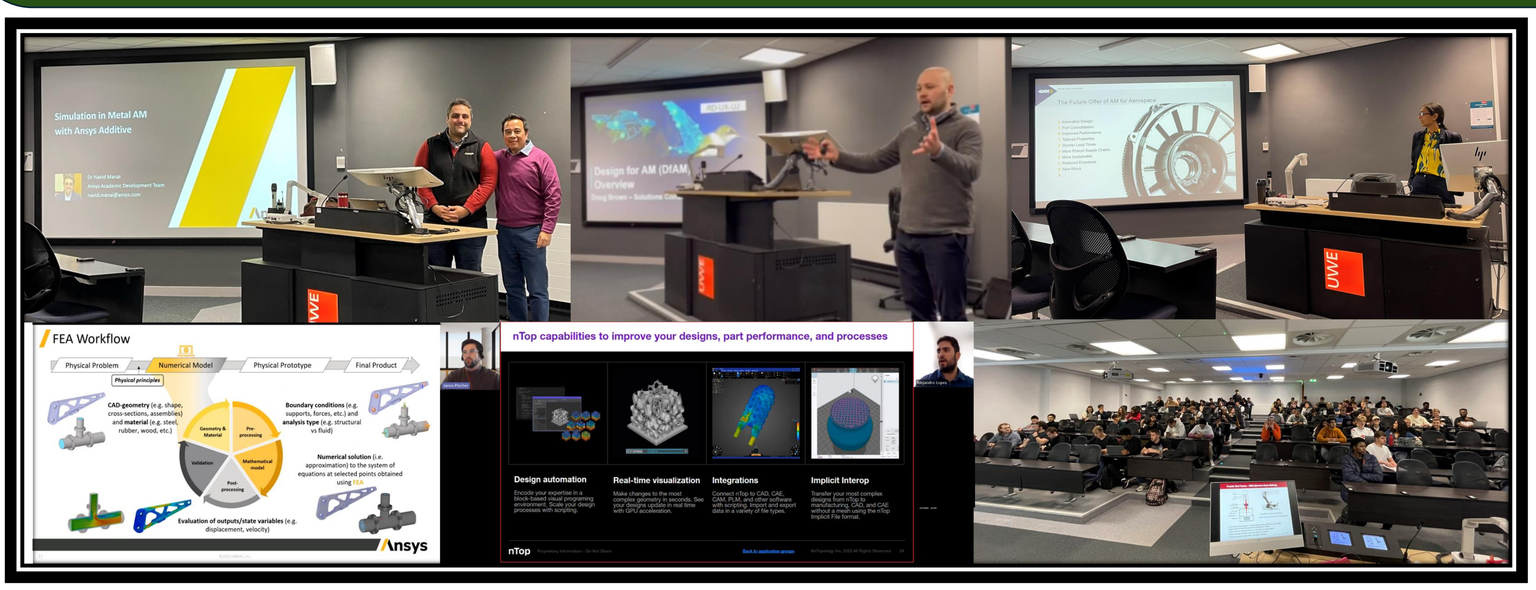
(iv) Identify and apply suitable process modelling strategies concerning process efficiency and part quality

Problem based learning:

(i) Lectures, tutorials, practical, group discussions and peer learning

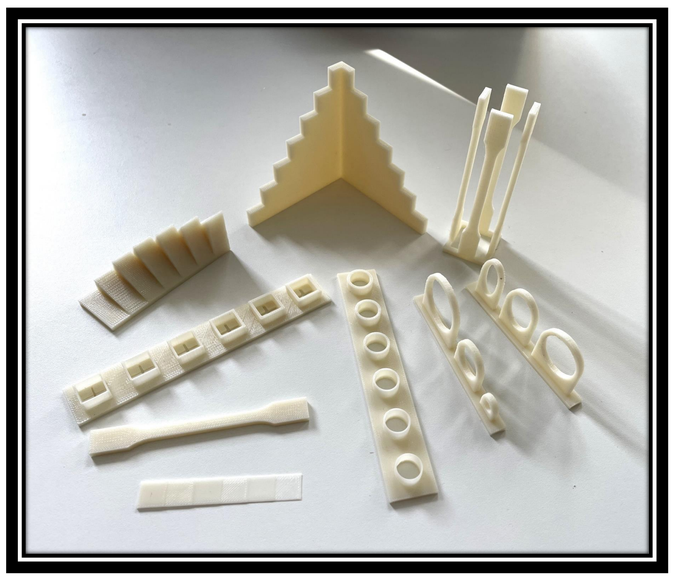
(ii) Group assignments are practical led and research oriented

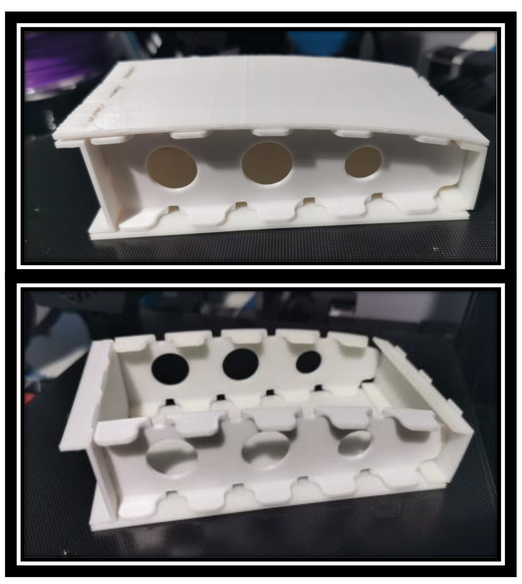
(iii) Feedback is reflected to enhance new learning materials for next academic year

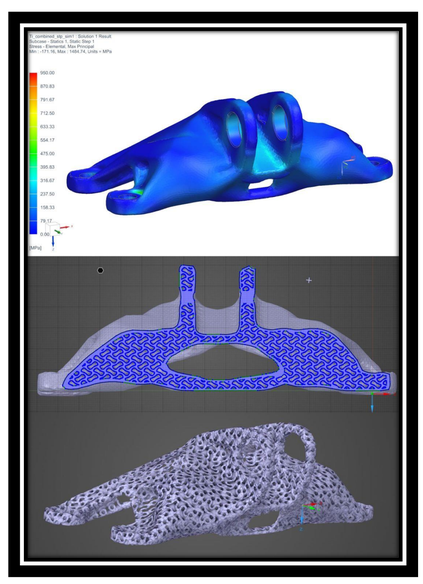


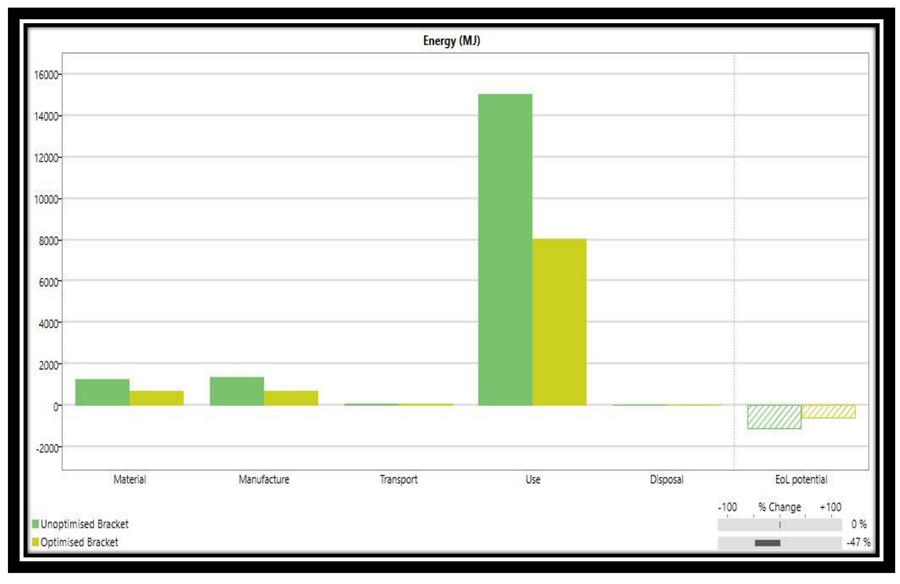
UWE's lecturers and invited guest speakers from ANSYS, Siemens, nTopology, GKN Aerospace

3D Printers, Computational suites, Metrology Equipment, Mechanical Lab









Benchmarking informs the design and manufacture of wing box (CW1); Lattice infilled topology optimised design and Life Cycle Analysis (CW2)