NATEP

National Aerospace Technology Exploitation Programme

Design/Modelling projects

Design/ Modelling Projects

Project	Supply chain partnership	Contact
Aircraft Ditching Loads Prediction Tool	• Stirling Dynamics • University of Southampton • Bombardier(customer)	Dr Simon Hancock - Research & Development Manager shancock@stirling-dynamics.com
This project will produce a method and tool to predict the loads experienced by an aircraft when ditching in water. This will cover a range of aircraft configurations and could be used by any aircraft manufacturer. NATEP Grant £166,850		

Project	Supply chain partnership	Contact
SMART Racking System	• S2 Aerospace Ltd • University of the West of England • Airbus Military UK (customer)	Tim Shortman - Managing Director tim.shortman@s2aerospace.com
The funding supports the development of a SMART Racking System for high-value aircraft wheels in the aerospace MRO and the introduction of new development capability within S2 (currently "build-to-print") for innovative engineering design solutions. NATEP Grant £154,750		

Project	Supply chain partnership	Contact
Whole-field simulated/ experimental data comparison	• Enabling Process Technologies Ltd • Strain Solutions Ltd • Airbus Operations Ltd (customer)	Dr John Philip Tyler – Director philip.tyler@eptworld.com
This project will develop a new method for the full-field comparison between experimentally derived digital image correlation displacement/strain data and finite element simulation results from aerospace structures, incorporating an innovative and fully automated coordinate transformation approach. NATEP Grant £77,000		

Project	Supply chain partnership	Contact
Flight Guardian	• The Great Circle Ltd • University of Central Lancashire • McLaren Applied Technologies (customer)	Adam Berrington – Director adam@thegreatcircle.co.uk
Flight Guardian is a first of a generation disruptive cockpit technology to improve the safety of aircraft. It uses body worn sensors and computing devices to act, in many respects, as a virtual co-pilot, providing a pilot with an extra pair of eyes to monitor the aircraft instruments, spotting and even predicting problems before they occur. It will produce warnings for the pilot and offer advice on a course of mitigating action to take to prevent accidents. NATEP Grant £126,800		

Project	Supply chain partnership	Contact
Large Deployable Antenna for Space	• Oxford Space Systems • Reliance Precision Ltd • MDA Corporation UK Ltd (customer) • VTOL-Technologies (customer)	Mat Rowe – Project Manager mat.rowe@oxfordspacesystems.com
Oxford Space Systems will design & develop a reflector surface for attachment to their existing scalable large deployable antenna. NATEP Grant £150,000		

Project	Supply chain partnership	Contact
Novel Miniature Actuator	• CNR Services International • Midland Aerospace • BE Aerospace, Florida (customer)	Chris Reckless – Managing Director creckless@cnrdesign.co.uk
CNR have designed a concept self-contained Novel Miniature Actuator (NMA) specifically for the aircraft passenger seat actuation market. This NMA is expected to provide cheaper manufacturing costs per actuator, lower mass, more reliability, greater efficiency and quieter and smoother performance than current seat actuators. NATEP Grant £148,500		

Project	Supply chain partnership	Contact
Additive Aero Valve Optimisations (AAVO)	• Meggitt Aerospace Ltd • Ashton & Moore Ltd • GE Aviation (customer)	Scott Lathrope –Meggitt PLC Engineer Scott.Lathrope@meggitt.com
A program to design, manufacture and test a functional aircraft component that is fully optimised for additive layer manufacture. A standardised optimisation capability will be generated by capturing process “lessons learned”. NATEP Grant £142,500		

Project	Supply chain partnership	Contact
Configurable Double Sided Cooled Integrated Power Module	• Semelab Ltd • Pre-Met • Rolls-Royce plc (customer)	Julian Thomas Julian.Thomas@ttelectronics.com
The project is intended to standardise power modules by having a single switch that can be configured to make various topologies. The single switch will be replaceable meaning maintenance can be done to power modules. The single switch will have a double sided cooled technology as a way of replacing wirebonds and improving the performance. NATEP Grant £ 127,200		

Project	Supply chain partnership	Contact
New Muffler Ducting for Air Distribution	• AVS-SYS Ltd • Arville • Foam Techniques Ltd • Raytheon (customer)	Andrew Whitehead – Engineering Director awhitehead@avsupport.org.uk
The project is to design weight-saving and cost saving aerospace muffler ducts which will support the development of a new manufacturing facility in the North West of England providing employment opportunities and increased exports. NATEP Grant £123,320		

Project	Supply chain partnership	Contact
Detection, Neutralisation and Investigation of Threat UAVs (DeNI of Threat UAVs)	• RNC Avionics Ltd • Saher(UK) • West Yorkshire Police (customer) • Eurocontrol (customer) • PNLD (customer) • Airbus DS Ltd (customer)	Natasha McCrone – Project Manager natasha@rinicom.com
The overall objective of the project is to develop and implement a scalable system capable of detecting, neutralising and investigating threat UAV's. The existing Duplex PTZ (dual optical and video) will be enhanced to include a novel detection, classification and tracking module enabling the police and relevant authorities to apply the appropriate countermeasures to neutralise the UAV and a framework of operational and legislative procedures will be implemented to support all high risk scenarios with the aim of identifying and prosecuting the perpetrator. NATEP Grant £150,000		

Project	Supply chain partnership	Contact
SmartHUD	• Artemis Optical • Plessey Semiconductors Ltd • BAE Systems (customer)	Stuart Allan – Technology Director stuart.allan@artemis-optical.co.uk
SmartHUD aims to use the recent proliferation in LED light sources and design unique and novel thin film coatings to enable their use in Head Up Display systems. The advantages sought are reduced weight, longer useful life of the light source and enhanced optical performance of the overall module. NATEP Grant £102,890		

Project	Supply chain partnership	Contact
Novel training through virtual reality	• Invirt Reality • University of Exeter • FlyBe (customer)	Mark Lewis – Technical Lead Mark.lewis@marchdynamics.co.uk
This project is a close collaboration between a leading software engineering company, a University and an airline. It will seek to develop a novel, immersive environment utilising the latest in technology enhanced learning. NATEP Grant £150,000		

Project	Supply chain partnership	Contact
Digital High Performance Servovalve	• Moog Controls • 4C Electronics • Moog Inc. (customer) • Embraer Commercial Aviation(customer)	Dr Phil Elliott – R&D Manager Pelliott2@moog.com
The execution of electronic closed loop control within a small flight control serv valve has many benefits at the system level including: digital interface, reduced internal leakage, faster dynamic response, higher accuracy and smaller size.		

Project	Supply chain partnership	Contact
3D Moulded Circuits	• Laser Optical Eng. Ltd • Moulded Circuits Ltd • MBDA UK Ltd (customer)	John Tyrer johntyrer@laseroptical.co.uk
Develop a laser writing system capable of producing 3D copper tracks or circuits on 3D aerospace lightweight structures. Create the ability to produce fully functional circuitry directly onto 3D parts, enhancing functionality and enabling them to become part of a larger product or system, thereby reducing size, weight and cost. NATEP Grant £145,727		

Project	Supply chain partnership	Contact
Slave Fasteners for Automation	• Kwikbolt Ltd • i2M • Wesco Aircraft (customer)	Dean Carran Operations Director dean@kwikbolt.com
To align with the future of aerospace manufacture this project aims to design and develop single sided temporary fasteners and their interfaces suitable for fully automated aerospace assembly processes. NATEP Grant £150,000		

Project	Supply chain partnership	Contact
Assystme	• Assystem UK Limited • Mosquito Digital Limited • Spirit AeroSystems • Airbus (customer)	Graham Younger Head of Business Development UK-Aerospace GYounger@AssystemUK.com
The assystme tool is a portable, SMART tool that can be applied in a manufacturing environment to increase quality and reduce cost of non-conformance. Providing route cause analysis and manufacturing process trends in a closed-loop solution, it reduces concessions and repairs utilising the engineering skills from Assystem. NATEP Grant £150,000		

Project	Supply chain partnership	Contact
Distortion and Residual Stress Control for Manufacture	• Silcoms Ltd. • The AMRC with Boeing • Sandvik Coromant • Craftsman Tools Ltd • Rolls-Royce plc (customer)	Andy Morris Engineering Manager andrew.morris@silcoms.co.uk
The partnership is working on a collaborative project looking to utilise the latest in FE analysis, residual and distortion stress management to optimise the engineering of high value, thin walled aerospace components. The project is aiming to keep the UK at the forefront of this highly skilled and competitive market. NATEP Grant £120,000		

Project	Supply chain partnership	Contact
Novel contra-rotating propeller for electric aircraft	• Hercules Propellers Ltd • Contra Electric Propulsion Ltd • Falcomposite Ltd (customer)	Rupert Wasey Managing Director rupert@hercprops.com
This collaboration between a propeller manufacturer and electric aircraft innovator will investigate novel contra-rotating blade designs. NATEP Grant £130,000		

Project	Supply chain partnership	Contact
Metrology for Additive Manufacturing	• Insphere Limited • Renishaw • Airbus Group Innovations (customer)	Ben Adeline Chief Executive ben@inspheretd.com
This project will develop an innovative and highly sought after metrology verification method for additive manufacturing processes. This will enable unique techniques for additive manufacturing process control supporting the certification of AM parts for production aerospace use. NATEP Grant £122,800		

Project	Supply chain partnership	Contact
ALFLEX	• 3D Metal Printing Ltd • University of Bath • Leonardo MW Ltd (customer)	Alberto Casonato Managing Director alberto@3dmetalprinting.co.uk
The objective of this research is to investigate the capability of manufacturing in ALM a Tail Driveshaft Flexible Coupling for a Leonardo helicopter. The expected results are to improve damage tolerance, inspectability and eliminate the presence of fasteners and ultimately to reduce component complexity. Because this is a flight critical part, Leonardo will also be working with and supporting the partners on a less critical Fan Impeller to enable more testing that will improve and influence the Coupling design. NATEP Grant £88,200		

Project	Supply chain partnership	Contact
Cooled Core Die Blocks	• Gardner BTC Ltd • Material Solutions • Invest Tech Ltd (customer)	Keith Fulford Project Manager kfulford@gardner-aerosapce.com
Gardner BTC Ltd., manufacturer of Injection dies is developing new technologies to produce core dies using alternative advanced manufacturing methods, specifically focused on providing better injected parts and reduced non-conformance. NATEP Grant £52,150		

Project	Supply chain partnership	Contact
Integrally Bladed Rotor (IBR) – Abrasive Barrel Milling Cutter	• ITP Engines UK Ltd • Technicut Ltd • Geo Kingsbury • Industria de Turbo Propulsores, SA (customer)	Carlos Cenal Project Engineer Carlos.Cenal@itp-engines.co.uk
Industrial research to develop the capability to manufacture gas turbine integrally bladed rotors (IBR's) using barrel milling tools thereby reducing manufacturing time and improving quality. NATEP Grant £131,650		

Project	Supply chain partnership	Contact
Integrally Bladed Rotor (IBR) – Abrasive Flow Machining	• ITP Engines UK Ltd • Extrude Hone Ltd • Brunel University • Industria de Turbo Propulsores, SA (customer)	Carlos Cenal Project Engineer Carlos.Cenal@itp-engines.co.uk
Industrial research to model the effects of an Abrasive Flow Machining polishing process on aerofoil profiles and the development of predictive process controls which will lead to a reduction in manufacturing time and an improvement in quality. NATEP Grant £107,350		

Project	Supply chain partnership	Contact
Small Rotary Engine Technologies	• A&M EDM Ltd • Techteam Development LLP • ASNU Corporation Europe Ltd • EMT Ingenieurgesellschaft (customer)	Tim Shires Design Engineer tim@amedm.co.uk
Development of an innovative aerospace standard engine architecture to support production of small multi-fuel operation power units specifically aimed at the unmanned air vehicle (UAV) market. NATEP Grant £95,000		

Project	Supply chain partnership	Contact
Fastening Forms in Composite Technology	• Rotite Technologies • Sigmatex • University of Manchester • Airbus Operations Ltd (customer) • Aircelle Ltd (customer) • Ejot UK Ltd (customer)	Caterina Silva – Technical Project Manager cat.silva@rotite.com
Lightweight structures and assemblies are essential for fuel efficiency and sustainable design. This project will develop, for the first time, integrally formed Rotite fasteners in composites, providing structural and weight saving solutions in contemporary materials. NATEP Grant £139,500		

Project	Supply chain partnership	Contact
Innovative Aerospace Transport Tooling	• Datum Tool design • Fleet Maintenance Ireland Ltd • Bombardier (customer)	Michael Maguire – Director michael@datum-design.com
The project will gain understanding of cost effective and re-configurable tooling, to permit the manufacture of multiple transport systems for aerospace assemblies. R&D Grant awarded £87,446		

Project	Supply chain partnership	Contact
Modular Galley for Assembly	• Belfast Aircraft Stress Engineers Ltd • Moyola Precision Engineering Ltd • Denroy Plastics Ltd • SR-Technics (customer)	Peter Hinds – Strategic Business Director Pete.Hinds@basegroup.co.uk
The project collaborators will develop a modular design concept for an aircraft galley. The modular concept is to enable a simplified manufacturing and assembly process R&D Grant awarded £95,025		