

**Programme Specification**

**Title of Course:** **Foundation Degree in Applied Aircraft Engineering**

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| **Date first produced** | Oct 2022 |
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| **Date of implementation of current version** | Sept 2023 |
| **Version number** | 3 |
| **Faculty** | SEC |
| **School** | Engineering and the Environment |
| **Department** | Aerospace and Aircraft Engineering |
| **Delivery Institution** | Kingston University |

This Programme Specification is designed for prospective students, current students, academic staff and employers. It provides a concise summary of the main features of the programme and the intended learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if they take full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes and content of each modules can be found in the course VLE site and in individual Module Descriptors.

**SECTION 1:** **GENERAL INFORMATION**

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| **Award(s) and Title(s):** | Online Foundation Degree in Applied Aircraft Engineering |
| **Intermediate Awards:** | None |
| **FHEQ Level for the Final Award:** | *5* |
| **Awarding Institution:** | Kingston University |
| **Teaching Institutions:** | Kingston University |
| **Location:** | Kingston: Friars Ave, LONDON, SW15 3DW |
| **Language of Delivery:** | English |
| **Modes of Delivery:** | Online |
| **Available as:** | Full field |
| **Minimum period of registration:** | 2 years part-time (one year possible) |
| **Maximum period of registration:** | 4 years |
| **Entry Requirements:** | The minimum entry requirements are successful completion of a CAT B licence training course and have successfully passed the approved examinations or equivalent from the Military. Active students on a CAA/EASA licence course with minimum of 90 RPL completed credits, will also be considered on an individual basis. |
| **Programme Accredited by:** | This programme is not accredited |
| **QAA Subject Benchmark Statements:** | Characteristics Statement Foundation Degree  February 2020 |
| **Approved Variants:** | N/A |
| **UCAS Code:** |  |

**SECTION 2: THE COURSE**

The Foundation Degree (FD) in Applied Aircraft Engineering is a part-time online programme. The course is designed to develop the leadership tools, skills and qualifications required to enable aircraft maintenance engineers to progress into leadership and management positions. One of the benefits of this part-time programme is that it gives access to Higher Education to working professionals that cannot afford two years of full-time study.

The students will have different levels of leadership experience from different organisations. Participation in the course provides an opportunity to work with colleagues from different organisations and with varying backgrounds and managerial experience to develop their own managerial skills and style as well as building community and networks. The sharing of their experience through working together on the course will widen their organisational and leadership knowledge.

The additional knowledge, skills and understanding required to complete the Foundation Degree will be acquired through the completion of three modules delivered by Kingston University. The AE5302 and AE5300 modules will be taught through a series of online sessions, activities, and resources. In the case of AE5310, it will be based on an online portfolio developed throughout the programme.

Successful completion of this programme enables the student to progress to the final year of the BSc (Hons) Aircraft Engineering top-up programme. This course is accredited by the Royal Aeronautical Society (RAeS) as meeting the academic requirement for registration as an Incorporated Engineer. After the Foundation Degree programme has been validated, it will be presented to the RAeS for their approval.

The programme adheres to the Kingston Academic Framework Curriculum Design Principles. The modules are designed in a holistic way to align with the programme learning outcomes. A student-centred learning, teaching and assessment strategy has been designed with particular attention paid to the needs of part-time, online students.

1. **Aims of the Course**

The aims of the programme are to:

* provide formal academic recognition to students for their RPL and enable them to access the top-up in Aircraft Engineering which will lead to an accredited qualification at honours degree level.
* provide students with the opportunity to develop their written and oral communication skills.
* enable aircraft maintenance engineers to develop the skills, tools and qualifications required by them to progress into leadership and management positions.
* develop the individual’s confidence, competence and leadership in aircraft maintenance by reflection on and evaluation of their practice.
* prepare students for continuous professional development by encouraging the use of personal development plans and introducing them to the Royal Aeronautical Society.

1. **Intended Learning Outcomes**

The programme provides opportunities for students, who have demonstrated the requisite knowledge of aircraft systems and maintenance processes, to develop the leadership skills, tools and qualification to progress into and within management/supervisory positions in the aircraft maintenance field. These skills include communication – oral and written, mathematical, financial, teamwork and project management.

The programme introduces the students to Business Ethics, Corporate and Social Responsibility (CSR), Environment, Social, Governance ESG and Sustainability.

The programme develops the students’ ability to become reflective professionals.

The programme gives students the opportunity to identify the range of key skills they have developed in the workplace and create a personal development plan based on those skills.

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| **Programme Learning Outcomes** | | | | | | |
|  | **Knowledge and Understanding**  **On completion of the course students will be able to:** |  | **Intellectual skills – able to:**  **On completion of the course students will be able to:** | |  | **Subject Practical skills**  **On completion of the course students will be able to:** |
| A1 | Demonstrate their knowledge and understanding of the essential facts, concepts, theories and principles that underpin both engineering in general and aircraft engineering in particular | B1 | Analyse the operation of aircraft systems and equipment particular to the trade for which they have studied, to carry out fault diagnosis and identification | | C1 | Work effectively and safely in an aircraft maintenance environment, whilst having due regard for the rules and regulations under which they must work |
| A2 | Meet the knowledge requirements specified in EASA Part 66 for the category of EASA licence/CAA or equivalent for which they have been studying | B2 | Provide evidence of their analytical and evaluative capabilities | | C2 | Perform scheduled and unscheduled maintenance, fault diagnosis and rectification and serviceability testing on complex aircraft systems particular to the trade for which they have studied |
| A3 | Demonstrate an understanding of the responsibilities and legal obligations of licensed aircraft maintenance engineers and the effects of them exercising their engineering judgement | B3 | Assess the implications of their actions in relation to aircraft maintenance activities | | C3 | Use tools and equipment found in a typical aircraft maintenance environment and to accurately follow verbal and written instructions |
| A4 | Use typical aircraft manuals and documentation correctly and effectively | B4 | Reflect on their learning, identify strengths and weaknesses, set targets and develop action plans to meet them, and prioritise | | C4 | adopt ‘good working practices’ by being able to select and follow appropriate and approved methods, procedures and processes |
| A5 | Demonstrate an understanding of the need for ensuring a clean working environment, to follow all safety precautions with regard to self, equipment and aircraft and to have a responsible attitude in respect to flight safety and airworthiness of aircraft |  |  | | C5 | Select, extract and collate information from a range of resources and present information in a style appropriate to purpose; including through presentation |
|  |  |  |  | | C6 | Use a range of ICT resources for communication and research, to retrieve and store information and data, and to produce documents incorporating different types of information |
| **Key Skills** | | | | | | |
|  | **Self Awareness Skills** |  | **Communication Skills** | |  | **Interpersonal Skills** |
| AK1 | Take responsibility for own learning and plan for and record own personal development | BK1 | Express ideas clearly and unambiguously in writing and the spoken work | | CK1 | Work well with others in a group or team |
| AK2 | Recognise own academic strengths and weaknesses, reflect on performance and progress and respond to feedback | BK2 | Present, challenge and defend ideas and results effectively orally and in writing | | CK2 | Work flexibly and respond to change |
| AK3 | Organise self effectively, agreeing and setting realistic targets, accessing support where appropriate and managing time to achieve targets | BK3 | Actively listen and respond appropriately to ideas of others | | CK3 | Discuss and debate with others and make concession to reach agreement |
| AK4 | Work effectively with limited supervision in unfamiliar contexts |  |  | | CK4 | Give, accept and respond to constructive feedback |
|  |  |  |  | | CK5 | Show sensitivity and respect for diverse values and beliefs |
|  | **Research and information Literacy Skills** |  | **Numeracy Skills** | |  | **Management & Leadership Skills** |
| DK1 | Search for and select relevant sources of information | EK1 | Collect data from primary and secondary sources and use appropriate methods to manipulate and analyse this data | | FK1 | Determine the scope of a task (or project) |
| DK2 | Critically evaluate information and use it appropriately | EK2 | Present and record data in appropriate formats | | FK2 | Identify resources needed to undertake the task (or project) and to schedule and manage the resources |
| DK3 | Apply the ethical and legal requirements in both the access and use of information | EK3 | Interpret and evaluate data t inform and justify arguments | | FK3 | Evidence ability to successfully complete and evaluate a task (or project), revising the plan where necessary |
| DK4 | Accurately cite and reference information sources | EK4 | Be aware of issues of selection, accuracy and uncertainty in the collection and analysis of data | | FK4 | Motivate and direct others to enable an effective contribution from all participants |
| DK5 | Use software and IT technology as appropriate |  |  | |  |  |
|  | **Creativity and Problem Solving Skills** |  |  | |  |  |
| GK1 | Apply scientific and other knowledge to analyse and evaluate information and data and to find solutions to problems |  |  | |  |  |
| GK2 | Work with complex ideas and justify judgements made through effective use of evidence |  |  | |  |  |
| **Teaching/learning methods and strategies** | | | | | | |
| The range of online learning and teaching strategies include workshops, role play, asynchronous lectures, seminars, individual tutorials and monitored self-reflection, | | | | | | |
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| **Assessment strategies** | | | | | | |
| The assessment strategies are all online and include individual and group presentations, a written examination, research projects, log-book, and a portfolio. | | | | | | |
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1. **Entry Requirements**

The minimum entry requirements are successful completion of a CAT B licence training course and have successfully passed the approved examinations.

The programme recognises the significant knowledge and understanding gained by successfully passing the EASA/ CAA B1 or B2 licence module exams or equivalent. The teaching and assessment for the EASA modules will be delivered by a commercial provider with EASA part 147 approval.

Students from the military, non-EASA Licence holders, or have the equivalent of CAA will have to demonstrate that they meet the entry criteria.

Students who have completed 90 RPL credits and are active students on a EASA/CAA licence course will be considered on individual basis.

1. **Programme Structure**

This programme is offered in part-time online mode and leads to the award of a Foundation Degree. The programme recognises the learning required to pass a maintenance engineer’s licence maximum allowable RPL of 150 credits so further RPL is not possible. The programme consists of three taught modules delivered over two years.

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| **MODULE ONE – 30 credits Year 1**  **AE5302 Applied Engineering Analysis and Communication (Online)**  This will enable students to apply and communicate the knowledge acquired in the European Aviation Safety Agency (EASA) modules and to extend that knowledge as required. It covers four main themes: mathematics, engineering problem solving, communication skills and research methods. This module also provides a foundation for further study at higher levels. This module aims to ensure that students have the supporting skills necessary to apply the knowledge acquired in the EASA modules and prepare students for further study in higher education. |

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| **MODULE TWO – 30 credits Year 2**  **AE5300 module, Leadership in Aircraft Engineering (Online)**  This module will introduce students to a broad range of skills which are necessary to move from effectively managing themselves to managing others. It will consider the basic principles of project management, accounting and cash flow as well as developing the ability to analyse and describe the external environment facing managers. The module will introduce the principles of leadership and team development and the management of people and teams. This will include the topic of Corporate and Social Responsibility/ESG, ethics and sustainability. |  | **MODULE THREE – 30 credits Year 2**  **AE5310 module, Professional Development (Online)**  This module is designed to give students the opportunity to develop self-reflection skills. These are critical skill required in the workplace as managers need to learn to reflect on their own performance and not just rely on input from their line manager critical for managers. It enables students to reflect on their progress throughout their professional careers to date and to assemble a portfolio of evidence of the key and practical skills they have acquired in their normal job role. The portfolio can then be used to support the creation of a Development Plan for the next 2-3 years. |
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**E1.** **Professional and Statutory Regulatory Bodies**

Successful completion of this programme enables the student to progress to the final year of the RAeS accredited BSc (Hons) Aircraft Engineering top up programme. This course meets the academic requirement for registration as an Incorporated Engineer. After the Foundation Degree programme has been validated, it will be presented to the RAeS for their approval as an allowed route to the BSc (Hons) Aircraft Engineering.

**E2.** **Work-based learning, including sandwich programmes**

This programme is only available for online, part-time study. It allows students to reflect upon their own personal experience of working in an applied setting, to focus on aspects of this experience that they can clearly relate to theoretical concepts and to evaluate the relationship between theory and practice.

**E3.** **Outline Programme Structure**

This programme consists of 240 credits, 120 at level 4 and 120 at level 5. 120 credits at level 4 and 30 credits at level 5 will be granted by RPL for students that have successfully passed all the EASA/CAA B1 or B2 examinations or equivalent. There will be three additional level 5 modules worth 30 credits each; each delivered at Kingston University.

All students will be provided with the University regulations and specific additions that are sometimes required for accreditation by outside bodies (e.g. professional or statutory bodies that confer professional accreditation). Full details of each module will be provided in module descriptors and on Canvas/MS Teams.

At L4, all 120 credits are achieved through RPL of the learning done on the licence course. This is recorded as AE4XXX Applied Aircraft Engineering L4 RPL.

The remaining 30 L5 credits are achieved through RPL of the learning done on the licence course. This is recorded as AE5XXX Applied Aircraft Engineering L5 RPL

**RPL (part of the entry requirements)**

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| **EASA/CAA Modules** |  | **Module** | **CCredits** |
| M1,M2 ,M8 | Aviation Maths, Physics and Aerodynamics | AE4xxx | 30 |
| M3,M4,M5 | Electrical Electronic fundamentals and Digital Techniques | AE4xxx | 30 |
| M8,M9,M10 | Human factors and Legislation | AE4xxx | 30 |
| M6,M11,M15 | Aircraft Structures, Material, Systems and Propellers | AE4xxx | 30 |
| Practical skills+M7 | Maintenance Practices and practical skills | AE5xxx | 30 |

**Kingston University Delivery of this module**

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| **Level 5** (at least 60 credits = core) | | | | | | | |
| **Compulsory modules** | **Module code** | **Credit**  **Value** | **Level** | **%**  **Written exam** | **% Online Tests** | **%**  **course-work** | **Teaching Block** |
| Applied Engineering Management and Communication | AE5302 | 30 | 5 | 50 | 20 | 30 | TBs1&2  Year 1 |
| Professional Development | AE5310 | 30 | 5 |  |  | 100 | TB1s+2  Years 1&2 |
| Aircraft Maintenance Leadership | AE5300 | 30 | 5 | 50 |  | 50 | TBs1&2  Year 2 |

**F. Principles of Teaching Learning and Assessment**

This is a part time distance learning programme, delivered through synchronous interactive video, teacher guided and supported asynchronous learning and teaching, and independent study.

Individual personal tutorial support is provided for each student on the programme.

The course will start with an onsite induction session at Kingston University. For those students that are unable to attend, an induction resources in Canvas/MS Teams will be available followed by an on-going online support.

The purpose of this session is for students to be introduced to:

* Kingston University and its facilities, as well as the learning technologies used on the course: MS Teams, Canvas, Padlet, Mentimeter and the Office 365 suite.
* Introduction to online learning and teaching including expectations.
* their personal tutors.
* the RAeS.

This will ensure that the students have access to the requisite software and understand how they work and how they will be used on the course. The induction will also introduce the Kingston University support that is available to students on the course, for example SASC, Maths Aid for AE5302 and the online Bloomsbury Study Skills resources. This induction will encourage the student participation required for group work and collaboration and will enable students to build community/networks with colleagues from different organisations and with different backgrounds and managerial experience.

There will be a second onsite induction at Kingston University at the beginning of the second year to reinforce community and introduce the topics and support available for the two second year modules.

**G. Module delivery**

The delivery method for synchronous sessions will be delivered through MS Teams, with resources and asynchronous activities provided through three Canvas modules. Each Canvas module will have a module home page and uses a learning design based on topics and units pages to structure and sequence the module’s learning resources and activities. Each Canvas module will have an integrated Teams site, which in addition to being used for synchronous teaching events, will also be used for ‘near real-time’ chat-based learning activities and for individual tutorial support. A Team’s ‘public’ channel will be set up to support community building and allow students to share their experiences and discuss topics. In addition, there will be separate private channels set up for each student to share information with their personal tutors. Students will have full editorial rights within these channels. Students will be guided as part of learning activities to use Canvas discussion boards providing students flexibility in terms of contributing and time to develop reflective responses.

The two taught modules AE5302 and AE5300 will have several different delivery methods. There will be a bi-weekly online synchronous session for TB1 and TB2. The timings of the sessions will be arranged to suit the cohort availability.

The teaching team has decided to introduce AE5310at the beginning of the course, running in parallel to AE5302 and AE5310, to maximise the opportunity for students to collect evidence and start using the online resources ahead of time if they wish (it will be encouraged). Students will also the have additional time to attend or arrange courses in their workplaces, at KU or externally that support their professional development. The assessment will take place throughout the second year.

Students will be required to engage with asynchronous material, for example: videos, articles, research and podcasts in advance of the synchronous sessions, and be able to test their understanding through quizzes. The students will take turns at the start of each synchronous session to deliver a 5-minute presentation that summarises the previous session. This is intended to provide formative feedback on communication skills and understanding.

All synchronous sessions will be recorded for revision purposes and in case students are unable to attend.

Students will also engage in a range of activities both prior to and following synchronous sessions including asynchronous discussions, production and contribution of resources to the module (e.g., through editing Canvas pages), inquiry-based activities and role play. The online role play sessions will be recorded, with a reflection, and then uploaded into MS Teams where formative feedback can be given by the teaching staff. This way students can arrange the sessions at a convenient time for groups of three.

In addition to Canvas Quizzes regular use of polling/quiz software, such as Mentimeter and Reflect in MS Teams, will be used to check understanding, promote feedback and encourage student participation.

**The assessment strategy**

All the exams, tests and presentations for this module will be online and, in the case of exam and tests, open book. The focus will be on authentic assessments based on real world problems in aircraft engineering and leadership and includes both group based and individual assessments. Assessments include presentations demonstrating leadership and teamwork, development of a professional portfolio, production of an individual development plan and authentic reports, in addition to quiz based-tests and end of module exams

The assessment strategy for AE5302 is:

* two objective question-based assessments
* a research report with recommendations
* an end of module exam

The assessment strategy for AE5300 is:

* an end of module exam.
* a group leadership/teamwork presentation
* an individual leadership/teamwork presentation

The assessment strategy for AE5310 is the development of a professional portfolio and a 2–3-year individual development plan.

**H. Support for Students and their learning**

Students are supported by:

* A yearly onsite induction which includes briefings on the programme; introduction to university computer-based resources and online support, university rules, regulations and procedures.
* A Course Director, Module Leader and personal tutor.
* A designated programme administrator.
* A student course rep that sits on the Student Voice Committee.
* Canvas– the university’s on-line virtual learning environment (VLE), and delivery through MS Teams
* Libraries that provide support for academic skills.
* Disabled student support
* The Students’ Union

Although this programme is entirely delivered online, all students will be assigned a personal tutor that will remain with them throughout the programme. The personal tutor will advise the students on the development of their Personal Development Portfolio and on their taught modules.

Students will be introduced to all the online support available through the University for example SASC, Maths Aid and the Bloomsbury Study Skills.

**I. Ensuring and Enhancing the Quality of the Course**

The University has several methods for evaluating and improving the quality and standards of its provision. These include:

* External examiners who review work, attend assessment boards and report on their findings.
* Bi-annual School Enhancement Committee where the operation of the course is considered. A student representative from each intake of the programme is invited to attend.
* An annual review and development process.
* Periodic reviews undertaken at subject level.
* Student feedback through end of module evaluation questionnaires (MEQs) and the Student Voice Committee.

**J. Employability Statement**

This whole programme is concentrated on developing employability and workplace skills. Successful completion of the programme will make the students more effective in their roles and enable them to progress to an Honours degree.

**K. Approved Variants from the UMS/PCF**

None

**l. Other sources of information that you may wish to consult**

Engineering subject benchmark:

<https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/sbs-business-management-15.pdf?sfvrsn=c7e1f781_6>

Professional bodies:

[www.aerosociety.com/](file:///C:/Users/KU50147/Downloads/www.aerosociety.com/)  [www.imeche.org/](http://www.imeche.org/)

The School of Aerospace and Aircraft Engineering website:

<http://sec.kingston.ac.uk/about-SEC/schools/aerospace-and-aircraft-engineering/>

EASA. The consolidated version of Regulation (EC) No 2042/2003 is available from the EASA website on page: <https://www.easa.europa.eu/regulations/continuing-airworthiness-regulations.php>. Annex III (Part-66), Appendix I of this document contains the EASA syllabuses (Basic Knowledge Requirements) for EASA Aircraft Maintenance Licenses. Annex II (Part-147) details the requirements that must be satisfied in order to be granted approval to conduct EASA approved training

**Development of Programme Learning Outcomes in Modules**

This map identifies where the programme learning outcomes are assessed across the modules for this programme. It provides an aid to academic staff in understanding how individual modules contribute to the programme aims, and a means to help students monitor their own learning, personal and professional development as the programme progresses and a checklist for quality assurance purposes. Include both core and option modules.

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|  | **Module Code** |  | **AE5302** | **AE5300** | **AE5310** | **EASA/CAA**  **(or equivalent)** |
| **Programme Learning Outcomes** | **Knowledge & understanding** | A1 | SF |  |  | S |
| A2 |  |  |  | S |
| A3 |  |  |  | S |
| A4 |  |  |  | S |
| A5 |  |  |  | S |
| **Intellectual Skills** | B1 |  |  |  | S |
| B2 | SF | SF | SF |  |
| B3 |  |  |  | S |
| B4 |  |  | SF | S |
| **Practical Skills** | C1 |  |  |  | S |
| C2 |  |  |  | S |
| C3 |  |  |  | S |
| C4 |  |  |  | S |
| C5 | SF | SF | SF | S |
|  |  | C6 | SF | F | SF |  |

**S**  indicates where a summative assessment occurs.

**F** where formative assessment/feedback occurs.

\* If not achieved via workplace activities, they will be part of the Development Plan for AE5310

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|  | **Module Code** |  | **AE5302** | **AE5300** | **AE5310** | **EASA/CAA**  **(or equivalent)** |
| **Programme Learning Outcomes (Cont’d)** | **Self-Awareness** | AK1 |  |  | SF |  |
| AK2 |  |  | SF |  |
| AK3 |  |  | SF |  |
| AK4 |  |  | SF |  |
| **Communication** | BK1 | SF | SF | SF |  |
| BK2 | SF | SF | F |  |
| BK3 |  | SF | SF |  |
| **Interpersonal** | CK1 |  | SF |  |  |
| CK2 | F | F | SF |  |
| CK3 |  | SF | F |  |
| CK4 | F | F | SF |  |
| CK5 |  | F | SF\* |  |
| **Research and Information Literacy** | DK1 | SF | SF | SF |  |
| DK2 | SF | SF | SF |  |
| DK3 | SF | SF | SF |  |
| DK4 | SF | SF | F |  |
| DK5 | SF | SF | SF |  |
| **Numeracy** | EK1 | F | F | SF\* |  |
| EK2 | F | F | SF\* |  |
| EK3 | F |  | SF\* |  |
| EK4 | F |  | SF\* |  |
| **Management and Leadership** | FK1 |  | F | SF\* |  |
| FK2 |  | F | SF\* |  |
| FK3 |  | F | SF\* |  |
| FK4 |  | F | SF\* |  |
| **Creativity and Problem Solving** | GK1 | SF |  | SF |  |
| GK2 | SF | SF | SF |  |
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