**KTH Summary Sheet**

**4. Overall study performance (Bachelor's degree)**

**\*4.1 Number of credits equivalent to one year of full-time studies**

**The total number of credits required for graduation is 166 and the programme duration is 4 years, the number of credits equivalent to one year of full-time studies is 41.5 credits.**

**ECTS Credits**

For the below questions you must convert the credits into the ECTS credit scale. ECTS stands for the European Credit Transfer and Accumulation System, where 60 ECTS credits corresponds to one full year of studies. If your home university does not offer an official conversion of your credits into ECTS credits, estimate the corresponding ECTS credits for each of your courses through the following formula:

ECTS credits for course Y = 60 x (credits for course Y at your home university) / (Number of credits equivalent to one year of full-time studies).

Example: A course from an Indian university has 5 local credit points. The total number of credit points per year stated in the transcript is 32. Then the equivalent ECTS is 60\*5/32 = 9.4 ECTS.

**\*4.2 ECTS credits in total required for your bachelor's degree: 240**

**\*4.3 ECTS credits passed so far: 240**

**\*4.4 Your local grading system**

The local grading system is predominately based on:- **Letter grades, with established numeric mapping**



**\*4.6 Lowest passing grade for obtaining the degree: 5/10 CGPA**

**\*4.7 Grounds for GPA calculation:**

* Yes



**4.8 Relative performance: 80 Percent**

**4.9 Additional information concerning grading systems: None**

**5. Eligibility for the programme**

Here, you supply information that is required to assess if you fulfill the specific requirements for admission to the programme.

Please carefully read the instructions below before you fill it in.

Recalculate the local credits into ECTS credits in the same way as in section 4.2 and 4.3. For your convenience, we repeat the conversion formula here.

ECTS credits for course Y = 60 x (credits for course Y at your home university) / (Number of credits equivalent to one year of full-time studies).

**\*5.1 Total number of ECTS credits in Mathematics and Programming:-**

Fill in the total number of ECTS credits in Mathematics and Programming in the field below

Mathematics and Programming – 12.3 ECTS credits

**\*5.2 Total number of ECTS credits in Applied mechanics:-**

Fill in the total number of ECTS credits in Applied mechanics in the field below

Applied Mechanics – 20.6 ECTS credits

**Instruction for entering the key courses**

Please provide one line per course, and for each course provide the following 5 pieces of information: 1) course code, 2) course name, 3) the number of local credits of the course, 4) your local grade for the course, 5) the URL to the official English course description.

Separate each of the fields with a semicolon (;). If you are missing information for a field, put a dash ("-") in that field. If you are specifying a course that you have not yet completed but have scheduled to complete before the actual admission, put the word "ongoing", in the field for the grade (4). Please be careful about the defined syntax. If you get it wrong, we may require you to make a new and corrected submission. We suggest that you create the text in your preferred tool of choice and then copy/paste it into the answer box.

For example, a row could look like this:

SF1625; Calculus in One Variable; 7.5; C; https://www.kth.se/student/kurser/kurs/SF1625?l=en

Or like this, if the course is not completed and there is no URL available:

SF1625; Calculus in One Variable; 7.5; ongoing; -

**\*5.3 Key course(s) in Control theory and Programming:-**

Course(s) in Control theory and Programming with link(s) to course description. Specify one course per line in the following format:

Course code; Name; Local credits; Local grade; URL

Control Theory –

19AEE214; Introduction to Control Theory; 3; B+; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE304; Avionics; 3; B; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE382; Avionics Lab; 1; A+; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE403; Flight Dynamics and Control; 3; B+; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

Programming –

19CSE100; Problem Solving and Algorithmic Thinking; 4; B+; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19CSE102; Computer Programming; 4; B; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19MAT211; Numerical Computing; 3; B; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

**\*5.4 Total number of ECTS credits in Control theory and Programming:-**

Fill in the total number of ECTS credits in Control theory and Programming in the field below

Control Theory - 14.4 ECTS credits

Programming – 15.9 ECTS credits

**\*5.5 Key course(s) in Solid mechanics and Fluid mechanics:-**

Course(s) in Solid mechanics and Fluid mechanics with link(s) to course description. Specify one course per line in the following format:

Course code; Name; Local credits; Local grade; URL

Solid Mechanics –

19AEE342; Composite Materials and Mechanics; 3; A+; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE203; Mechanics of Materials; 3; B; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE283; Materials Testing Lab; 1; A; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE345; Aero-Elasticity; 3; A; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE213; Aerospace Structures 1; 3; P; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE303; Aerospace Structures 2; 3; A; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE381; Aero-Structures Lab; 1; A+; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE311; Finite Element Methods for Aerospace; 3; B+; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

Fluid Mechanics –

19AEE201; Mechanics of Fluids; 4; P; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE282; Mechanics of Fluids Lab; 1; A+; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE211; Aerodynamics 1; 3; P; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE301; Aerodynamics 2; 3; B+; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE384; Low-Speed Aerodynamics Lab; 1; A; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE212; Compressible Fluid Flow; 3; A; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE302; Aerospace Propulsion; 3; A+; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE383; Propulsion Lab; 1; A+; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE441; Rocket and Spacecraft Propulsion; 3; A+; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE312; Flight Mechanics; 3; C; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE481; Flight Testing Lab; 1; B+; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE401; Computational Fluid Dynamics for Aerospace; 3; P; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE402; Aero Design; 5; C; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

19AEE451; Turbulent Flows; 3; A; <https://webfiles.amrita.edu/2022/03/btech-aerospace-engineering-curriculum-syllabus-2019.pdf>

**\*5.6 Total number of ECTS credits in Solid mechanics and Fluid mechanics:-**

Fill in the total number of ECTS credits in Solid mechanics and Fluid mechanics in the field below

Solid Mechanics – 7.23 ECTS credits

Fluid Mechanics – 13.37 ECTS credits

**5.7 Additional information you want to add concerning the specific eligibility (not required):-**

In most cases, you should leave this field blank.

However, if the eligibility for the programme you apply to at KTH depends on other documents than your Bachelor's degree, please upload additional, and attested documents at universityadmissions.se. This holds for the following two cases:

1. You have courses not included in your Bachelor's degree that are relevant for the eligibility asked for in Section 5.
2. You have another type of formal recognition of previous learning than a Bachelor's degree.

In these cases, please leave a short account on what type of additional documents that have been uploaded. Note that all these documents must be formally attested by a representative of an authoritative body to be valid for your application.

**6. Additional information for selection**

**\*6.1 Brief letter of motivation for studying at this programme at KTH (maximum 1000 characters):**

**Motivation Letter**

 Watching documentaries about the formation of solar system and galaxies that entrenched a deep interest in me about outer space during my school years. The elite organizations and their feats such as ISRO and NASA missions to Moon and Mars: their ingenious rockets and spacecraft have inspired me to be a part of them. This led me to think about rockets and space vehicles that enable us to think about space travel and make studying these places possible. It was this thought that drove me to study aerospace engineering.

 During my undergraduate program, I found Propulsion and Composites to be the most interesting subjects. However, the important subjects that made me understand the fundamentals and played a vital role in strengthening my decision of pursuing higher education in the space sector were Thermodynamics, Aerodynamics, Mechanics of Fluids, Structures, Compressible Fluid Flow, Avionics, Finite Element Methods, Spacecraft and Rocket Propulsion, Air Breathing Engines and Aero Design.

 In the Low-Speed Aerodynamics Lab, I was part of a wind tunnel experiment where we had to build a wing to find the pressure distribution across an airfoil in low Reynolds number flow and in the Flight-Testing Lab, I worked on Waypoint Navigation Tuning for UAVs using MATLAB where I was able to apply theoretical concepts to practical scenarios. The Aero-Design Course tasked my team with creating the preliminary design of an amphibious search and rescue aircraft, which required us to dive headfirst into hydrodynamics and mechanics with no prior experience which helped me understand problem solving and pragmatic approximations. Even though I had no formal course about Design Thinking, I absorbed it by working with experienced faculty and insightful colleagues on multiple topics.

 In my final year, I worked on a project that applied machine learning techniques to optimize an Expansion-Deflection (ED) nozzle. We designed axisymmetric ED nozzles with varying geometries using SolidWorks and meshed it using GAMBIT. We generated data from CFD analysis and used a Machine Learning algorithm to optimize it. We worked on enhancing its performance through rigorous testing and optimization using tools like ANSYS Fluent and MATLAB.

 In July 2023, I had the opportunity to do my first internship in Srihari Kota High Altitude Range (SHAR), an organization under ISRO where I got to learn about the various kinds of tests done on different parts of a rocket such as ignitor, crew module, nozzle, and AGNI motor before launching. This further propelled me to realize my strong interest in space which led me KTH Sweden where Space is offered as a specialization in its master’s course for Aerospace Engineering.  The space track focuses on applications related to rocket and satellite technology, with particular emphasis on propulsion, trajectory analysis, spacecraft dynamics and systems perspective. The elective streams I have chosen during my bachelor's degree also pertain to propulsion (Air Breathing Engines) and/or space (Rocket and Spacecraft Propulsion).

 At this stage of my academic journey, I believe that pursuing a Master's degree in Aerospace Engineering is the logical next step to deepen my knowledge and skills in this field. The experiences gained during my undergraduate studies and internships have provided me with a strong foundation, and I am now eager to engage in advanced coursework and research that will prepare me for leadership roles in the aerospace industry. I am particularly motivated to address current challenges and contribute to the ongoing advancements in space technology.

 Upon completion of the Master's program, I aspire to pursue a career in Propulsion systems in rockets and other spacecrafts where I can leverage the knowledge and skills acquired to contribute to advancements in the aerospace industry. I aspire to contribute to transformative projects involving Sustainability in Space Exploration which advocate for environmentally sustainable propulsion technologies to minimize the environmental impact of space exploration activities which aligns with the goals of KTH where sustainable development is an integral part of all the programs offered there. This could involve researching alternative propulsion methods, such as electric or nuclear propulsion, that reduce reliance on traditional chemical propellants. Looking ahead, my long-term goal is to assume a leadership role in space systems research and development in organization’s like ISRO and ESA. I aspire to contribute to transformative projects that push the boundaries of space technology, potentially working on innovations in propulsion systems or contributing to the exploration of deep space. I envision myself collaborating with industry leaders, research institutions, and governmental agencies to shape the future of space engineering whether in academia, industry, or research institutions.

 Several distinctive features of KTH make it my top choice for pursuing a Master's in Aerospace Engineering. The faculty at KTH includes some of the leading experts in aerospace engineering. The state-of-the-art laboratories and research facilities will also provide an unparalleled environment for hands-on learning and innovation. The university's strong emphasis on developing fundamentals allows students to integrate various engineering disciplines and future-oriented technology, fostering a holistic understanding of complex engineering problems. Moreover, its collaborative research environment provides ample opportunities for students to engage in cutting-edge projects, gaining practical experience. Additionally, its connection to industries ensures that the knowledge gained during the program is not only academically rigorous but also directly applicable to real-world scenarios. Finally, the vibrant academic community at KTH, characterized by diverse perspectives and a culture of innovation, is conducive to personal and intellectual growth.

 In conclusion, I am enthusiastic about the prospect of joining the esteemed program at your university and contributing to the rich legacy of innovation and excellence. I am confident that my academic background, research experience, and dedication to the field make me a strong candidate for admission to your esteemed institution.

 If selected, I wish to engage in collaborative projects, participate in student organizations, and contribute to the rich academic tapestry of the institution.

**7. Additional questions**

Here, we ask additional questions related to the programme you apply for. These questions are not part of our formal evaluation or ranking of your merits, but helps us to easily find information that is important for other reasons.

**7.1 Preferred choice of track within the programme: Space track**