

**AVIATION - BACHELOR OF ENGINEERING COMPETENCES**  
**NEW DEFINITION dd. March 2016**

<p>1)</p>	<p><b>ANALYSIS</b> - The analysis of an engineering or operational Aviation question or issue comprises the identification of the problem or customer need, the consideration and balancing of possible design strategies or proposed solutions, and the explicit charting out of the requirements, objectives and parameters.</p> <p>In this process, a whole range of methods are used, including desk research, mathematical analyses, process analyses, computer models and simulations, and experiments. Parameters relating to finance, economics, commerce, human factors, safety, security, environment, society, sustainability, etc. are also considered.</p> <p>The Aviation specialist demonstrates this competence by:</p> <ol style="list-style-type: none"> <li>selecting all relevant aspects in respect to the question or issue: taking into account the internal strategic, tactical and operational level, as well as the mutual influences between the parties in the Aviation chain;</li> <li>indicating the possible influences on technical, operational, business, regulatory, safety and environmental aspects;</li> <li>formulating a clear problem outline, objective and assignment by cutting through to the underlying question, and reformulating and demarcating it as such so that the client can identify with it;</li> <li>documenting a clear and complete program of requirements (technical and non-technical); specifically taking into account the complete and current legislative framework for Aviation;</li> <li>modelling or simulating a product, process or service to gain insight in performance and/or interdependencies.</li> </ol>	<p>Intended Final Level:</p> <p>3</p>
<p>2)</p>	<p><b>DESIGN</b> - Create a solution and be able to collaborate with various specialists (engineers and non-engineers, from inside and outside the Aviation world) in that process.</p> <p>The solution to be realised may be for a technological innovation, or a new or improved process or method, whereby the Aviation specialist has a sense of the impact of this solution on the operational process, safety, security, environment, sustainability and business.</p> <p>The Aviation specialist makes use of a structured methodological approach. The solution to be realised is based on the program of requirements and forms a complete and correct implementation of all requirements imposed.</p> <p>The Aviation specialist demonstrates this competence by:</p> <ol style="list-style-type: none"> <li>elaborating and selecting a concept solution on the basis of the requirements imposed, thereby specifically guaranteeing regulatory compliance;</li> <li>producing more detailed designs according to the selected concept solution, including visualisations with (industry standard) schematics and/or (technical) drawings;</li> <li>taking into account the technical and operational feasibility and testability of the solution; checking the impact of the solution on other (parts of) technical systems and/or operational processes;</li> <li>verifying the solution according to the schedule of requirements; analysing the quality of the solution in practice through simulation, practical testing, or expert judgement;</li> <li>drawing up the documentation for the product, service or process in accordance to company and legislative standards.</li> </ol>	<p>Intended Final Level:</p> <p>3</p>

3)	<p><b>REALISATION</b> - The realisation, delivery, implementation and documentation of a product, service or process that fulfils the requirements imposed. Therefore, the Aviation specialist develops practical skills for solving problems and with that in mind carries out studies and tests. The Aviation specialist is also capable of overseeing the (often non-technical) consequences of his work, for example in regards to ethics, the social environment and sustainability.</p> <p>The Aviation specialist demonstrates this competence by:</p> <ul style="list-style-type: none"> <li>a. making suitable use of materials, processes, norms and standards; and assembling components into a complete product, service or process;</li> <li>b. verifying and validating the product, service or process with respect to the requirements imposed;</li> <li>c. informing all internal and external stakeholders about relevant changes in a timely and effective manner;</li> <li>d. using 'operational readiness' as part of the mental framework: taking into account any possible operational disruptions and safety risks as a consequence of the realization;</li> <li>e. documenting the realisation process; updating relevant handbooks, manuals, work place instructions.</li> </ul>	<p>Intended Final Level:</p> <p>2</p>
4)	<p><b>CONTROL</b> - The Aviation specialist ensures that a product, service or process operates ideally in its application, context or working environment, taking into account aspects relating to regulations, safety, security, environment, finance, and (technical and economic) lifetime.</p> <p>The Aviation specialist demonstrates this competence by:</p> <ul style="list-style-type: none"> <li>a. introducing, testing, integrating and commissioning a new product, service or process to optimize current operational performance;</li> <li>b. ensuring continuity of operation by anticipating (expected) changes in legislation, mitigation of and recovery from operational disruptions, and creation of an adequate (operational) planning;</li> <li>c. demonstrating the ability to assess the performance of a product, service or process according to quality and safety criteria;</li> <li>d. providing feedback in response to changing circumstances and/or performance of a product, service or process;</li> <li>e. contributing to a just culture; facilitating open communication in order to ensure that potential errors quickly come to the forefront and can be corrected; eliminating any safety and security risks.</li> </ul>	<p>Intended Final Level:</p> <p>2</p>
5)	<p><b>MANAGEMENT</b> - The Aviation specialist manages organisational processes and the related staff with a view towards achieving the objectives of the organisational component of the project of which (s)he is in charge, taking into account the external environment (competition, customers, market trends).</p> <p>The Aviation specialist demonstrates this competence by:</p> <ul style="list-style-type: none"> <li>a. organising a (sub)project: quantifying time and money, assessing and quantifying risks, drawing up project plans and documentation and organising resources (human and material);</li> <li>b. monitoring and re-adjusting activities in terms of time, money, quality, information and organisation;</li> <li>c. task and process-oriented communication to all internal and external stakeholders using a complete overview of the Aviation chain to take common and conflicting interests into consideration;</li> <li>d. communication and cooperation with others in a multicultural, international and/or multidisciplinary environment, and fulfilling the requirements imposed by participation in a working environment.</li> </ul>	<p>Intended Final Level:</p> <p>2</p>

6)	<p><b>ADVICE</b> - The Aviation specialist offers well-argued advice on the design, improvement or application of products, processes and methods based on a thorough understanding of the restrictions, relationships and dependencies in the Aviation business. Distinctive for the Aviation specialist is the ability to think ahead and proactively focus on operational readiness.</p> <p>The Aviation specialist demonstrates this competence by:</p> <ul style="list-style-type: none"> <li>a. showing empathy with the position of the (internal or external) customer, clarifying the needs of the client in context of the Aviation chain;</li> <li>b. translating the customer requirements into technically &amp; economically-viable solutions suitable for the Aviation context in compliance with regulations and in consultation with relevant parties;</li> <li>c. supporting his/her advice with solid arguments, and convincing the client of these arguments;</li> <li>d. adequately coordinating with internal and external stakeholders.</li> </ul>	<p>Intended Final Level:</p> <p>2</p>
7)	<p><b>RESEARCH</b> - The Aviation specialist has a critical attitude and uses suitable research methods and techniques for acquiring and assessing information to be able to undertake applied research. This research is aimed at adding value for the organization.</p> <p>These methods can include: literature study, the design and execution of experiments, the interpretation of data and computer simulations.</p> <p>The Aviation specialist demonstrates this competence by:</p> <ul style="list-style-type: none"> <li>a. drawing up the research question and objectives for a specific study on the basis of the underlying question, problem or opportunity;</li> <li>b. independently selecting (scientific) literature, (inter)national standards, rules and regulations, and other information sources for acquiring further in-depth knowledge of the question, thereby demonstrating the ability to validate the reliability of the various information sources;</li> <li>c. selecting appropriate research method(s); planning and executing research activities;</li> <li>d. summarising, structuring and interpreting the results and drawing conclusions in relation to the study question;</li> <li>e. reporting and presenting these results according to the standards applicable in the professional field;</li> <li>f. critically reflecting on the selected approach and issuing recommendations for potential further study.</li> </ul>	<p>Intended Final Level:</p> <p>2</p>
8)	<p><b>PROFESSIONALISATION</b> - Acquiring and maintaining the skills needed to be able to effectively implement his/her competences. This includes maintaining an international orientation, following and interpreting current and future developments in the field, actively pursuing life-long learning with a focus on regulations, safety, security and operational readiness.</p> <p>The Aviation specialist demonstrates this competence by:</p> <ul style="list-style-type: none"> <li>a. independently defining and executing a learning objective and learning strategy, and linking the result back to the objective;</li> <li>b. adopting a flexible approach in a range of professional situations; being open to working in a multidisciplinary context;</li> <li>c. making sound considerations and decisions when faced with professional and ethical dilemmas taking into account the (inter)national legislative framework of accepted standards and values;</li> <li>d. offering and receiving constructive feedback with respect to both behaviour and content;</li> <li>e. reflecting on his/her own actions, thoughts and outcomes;</li> <li>f. using a range of communication forms and tools in order to effectively communicate in Dutch and English;</li> <li>g. staying up-to-date on developments in the area of Aviation, and being able to deal with any future changes in the industry as well.</li> </ul>	<p>Intended Final Level:</p> <p>3</p>

Based on: Domein HBO Engineering. (2012). *Bachelor of Engineering. Een competentiegerichte profielbeschrijving*. Amsterdam.

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