

University of Bologna

Regulations for the PhD Programme in Aerospace Science and Technology

XXXIX Cycle

Presentation

The Ph.D. programme in Aerospace Science and Technology pursues the education of researchers and high-qualified engineers, operating in the typical fields of Aerospace Engineering and able to address issues related to design and research activities with a high level of multidisciplinary.

The participants of the Ph.D. in Aerospace Science and Technology are involved in scientific activities of the highest level, making a key contribution to the development of research in the Department of Industrial Engineering. The key contribution deals with innovative and original research results, in the research field selected by the PhD candidate. These results will be disseminated through publications, patents, and participation in international conferences.

DAST doctoral students will produce a thesis in English as the final outcome of their PhD course, demonstrating the innovative results achieved during their doctoral studies.

Educational and Training Programme

The educational path consists of a common, course-based program, plus research-oriented training activities, aiming at capacity building of an independent attitude for scientific investigation.

To this end, the education and training programme is structured as follows:

- 1) The educational activities are quantified in (informal) *doctoral credits*.
- 2) In order to pass the third year of the Ph.D. course, the Ph.D. student must have acquired at least 18 credits during his three-year Doctorate.
- 3) The Ph.D. student defines his educational path in agreement with his Tutor. The training activities must be consistent with the research topics of the DAST doctoral course.
- 4) The DAST Academic Board verifies the student's educational path and the achievement of the requirements indicated in point 2 by the procedures reported in point 6.
- 5) Doctoral credits can be acquired by participating in the following activities:
 - a. *Preparatory courses*. Offered mainly in the first year of the doctoral programme, they are aimed at providing fundamental research enablers to every student, such as academic writing, scientific literature databases and online resources, knowledge transfer, and intellectual property. They are typically short courses, granting 1 to 2 credits each, depending on the number of hours.

- b. *Specific courses pertaining to the PhD student's academic discipline.* Depending on the specific needs of their research groups, students will attend seminars, courses from post-graduate degree programs, workshops, summer schools, etc. Doctoral credits for such activities will be granted by the PhD board on a case-by-case basis, within the ranges specified in the table below:

Activity	Credits
<i>Summer school, workshop</i>	<i>0.1 to 0.2 credit for each half-day of the event</i>
<i>Seminars and Short courses at PhD level</i>	<i>1 credit every 8-10 hours of frontal lessons</i>

If activities grant ECTS from the providing institution, the doctoral credits will be assumed to be the same as the ECTS. If ECTS are granted only after a final examination, the DAST student is required to pass the examination. Doctoral credits can be granted by the Ph.D. board for attendance only, for an amount corresponding to 1/3 of the nominal ECTS, after evaluation on a case-by-case basis.

- c. *Specific courses for the DAST Doctorate.* They are aimed at all students of the Doctorate, inherently interdisciplinary, but of predominantly aerospace interest. These courses typically amount to 3 doctoral credits each.
- 6) The Ph.D. students are required to complete a study/training/research stay of at least 3 months in an institution different from the University of Bologna, preferably abroad, consistent with the selected research topic. A stay divided into separate periods, usually lasting no less than a month, is acceptable; the obligation can be extraordinarily waived for reasons of force majeure, such as illness, maternity/paternity, and, for the case of Industrial Doctorates, lack of authorization by the employer due to unexpected changes of the working conditions in force at the time of the competition.
- 7) Procedures of verification of the education and training program:
- a. At the end of the first year of the Doctorate, the Ph.D. student must submit to the DAST Academic Board a report of the research activities performed and a program for his three-year educational path, agreed and countersigned by his tutor, which must contain: i) the educational and training activities (points 5a, 5b and 5c) and the research stays abroad (point 6) already carried out, together with the documents certifying the participation in such activities and, in case of workshops and summer schools, the agenda of the event ii) a plan of the educational and training activities to carry out in the following two years; the procedures for submitting these documents are detailed in point 7e;
 - b. At the end of the second year of the doctorate, the Ph.D. student must submit to the DAST Academic Board an updated report of the research activities performed and of the program for his three-years educational path, agreed and countersigned by his tutor, which must contain: i) the educational and training activities (points 5a, 5b and 5c) and the research stays abroad (point 6) already carried out, together with the documents certifying the participation in such activities and, in case of workshops and summer schools, the agenda of the event; ii) a plan of the educational and

training activities to carry out in the third year of the doctorate; the procedures for submitting these documents are detailed in point 7e;

- c. At the end of the third year of the doctorate, the Ph.D. student must submit to the DAST Academic Board a report of the research activities performed and of his three-years educational path, countersigned by his tutor. The report on the scientific activities must summarize the activities performed during the first two years and highlight the activities of the third year; the report on the educational path must contain: i) the educational and training activities (points 5a, 5b and 5c) and the research stays abroad (point 6) already carried out, together with the documents certifying the participation in such activities and, in the case of workshops, summer schools, the event agenda; the procedures for submitting these documents are detailed in the point 7e;
 - d. The documents certifying the participation in the educational and training activities can be: i) certificates of attendance in the case of workshops, summer schools, seminars; ii) signatures of attendance in the case of master/doctoral courses without final examination; iii) declaration of having successfully sustained the final examination in the case of master/doctoral courses with final examination, signed by the professor responsible for the course;
 - e. To facilitate the submission of the documents indicated in points 7a, 7b e 7c, students will be provided with a OneDrive personal folder; institutional credentials have to be used to access these folders and upload procedures will be indicated by the Ph.D. board.
- 8) The DAST Academic Board can indicate some educational activities as compulsory; these compulsory activities can be extended to all DAST Ph.D. students or only to a part of them (e.g., to a specific Cycle). Compulsory seminars are included in the calculation of the credits to be acquired within the three-year doctorate term.
 - 9) Ph.D. students are required to publish, within their three-year doctoral course, 2 significant articles, preferably in international peer-reviewed journals and/or international conference proceedings.
 - 10) Ph.D. students are required to hold, within their three-year doctoral course, at least one presentation at an international conference (in addition to those possibly contributing to point 9).