



**The Innovative Training Network in
Data Engineering for Data Science (DEDS)**

Application Manual

December 2020

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1 Presentation & Structure

The Innovative Training Network in Data Engineering for Data Science (DEDS) favours the integration of Early Stage Researchers (ESRs) into a network of specialists and researchers in Data Engineering (DE) and Big Data (BD). The curriculum is jointly delivered by Université libre de Bruxelles (ULB) in Belgium, Universitat Politècnica de Catalunya (UPC) in Spain, Aalborg Universitet (AAU) in Denmark, and Athena Research Center (ARC) in Greece. Scholars from academic partners around the world and partners from leading industries in DE, private R&D companies, service companies, public research institutes, and public authorities will contribute to the program by training students, providing computers, software, course material, job placement or internship perspectives, as well as financial support. This consortium will prepare ESRs not only to answer today's professional challenges by a strong connection with the needs coming from the industry, but also with the researchers' and innovators' views.

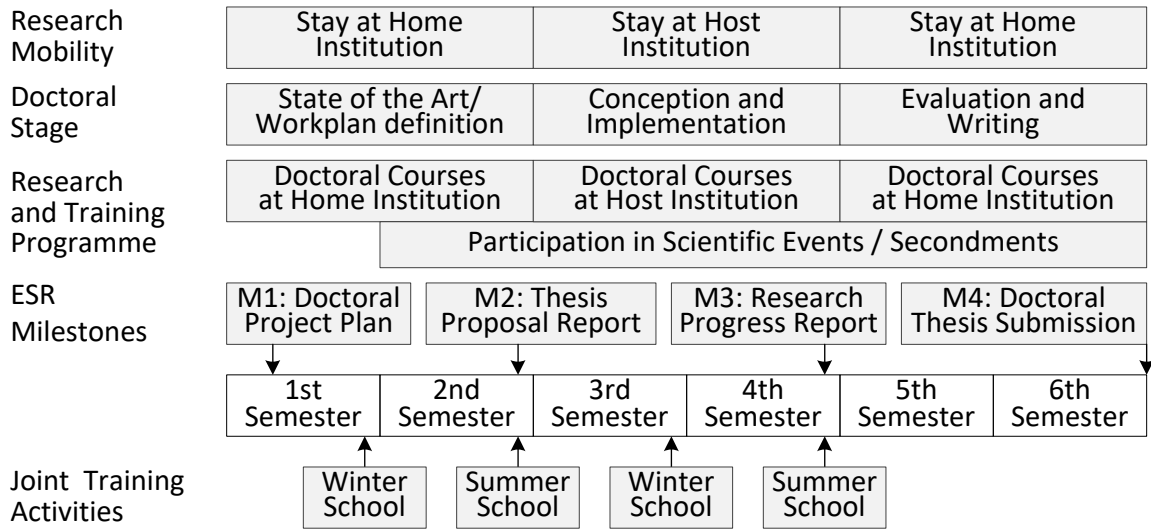


Figure 1: Doctoral program structure

DEDS is a joint doctoral programme of **three-year** duration. A **jointly designed doctoral process** (see Fig. 1) ensures a **continuous monitoring** of the ESRs. Each ESR will be involved in a Joint Doctoral Topic offered by two partners (i.e., **Home** and **Host**) with a secondment in a partner organisation. ESRs will be co-supervised by two experienced researchers using a **co-tutelle model**, and a third advisor with research experience from the corresponding secondment will provide ESRs an essential knowledge, experience and guidance for their future career. The consortium has extensive experience in co-tutelle arrangements, in particular in the Erasmus Mundus Join Doctorate IT4BI-DC.

To monitor the ESRs' progress, **four milestones** are defined, each accompanied by the corresponding document, which will be jointly evaluated. Two months after the enrolment (M1), the ESR together with his/her co-supervisors will deliver a **Doctoral Project Plan** (DPP), which formulates the elements involved in the research process. In addition, the DPP will specify the ESR's personalised doctoral training programme taking into account his/her previous background and future career prospects. In the **Thesis Proposal Report** (TPR), the DPP is updated by the ESR according to the experiences gained during the first stage of the doctorate. The TPR is much more concrete and elaborated than the DPP and should be delivered no later than one month before the end of the first year (M2). In the **Research Progress Report** (RPR), the ESR updates the TPR according to the experiences gained during the second stage of the doctorate. The RPR includes a description of the main issues, early research results, and plan for the remaining work. The RPR should be delivered no

later than one month before the end of the second year (M3). The DPP, TPR, and RPR will all be accompanied by a **Career Development Plan** (CDP) that discusses the ESR's envisioned career opportunities and a roadmap to achieve them. At the end of a secondment, a **Secondment Report** (SR) is prepared, describing not only the work and achieved goals, but also reflections on the experiences made and their influences on the ESR's future. Finally, the **Doctoral Thesis** will be submitted at the end of the third year (M4). After the submission, the CDP is updated again to reflect achieved and new goals.

The DPP will be presented in a poster session in the first winter school, the TPR and RPR will be defended in front of the CPC and an external evaluator during the summer schools. A common evaluation of these documents includes the assessment of the **potential contribution to innovation**. If a report is not satisfactory, the ESR must resubmit within one month a new version that takes the CPC's feedback into account. If this version is not satisfactory, a "get back on track" procedure is activated, whereby the supervisors prepare a detailed action plan for the ESR's performance to become satisfactory after a three-month period. Subsequently, the CPC decides if the progress has been re-established. If the ESR does not accept this procedure or is unable to recover lost ground, he/she will be withdrawn from the programme. This decision does not necessarily entail any consequence with respect to the participation of the Candidate in local Doctorate programmes of the Home and Host universities.

The Doctoral Thesis will be evaluated with a common form in addition to local forms used by the Home and Host universities. It should contain material for at least 3 international peer-reviewed publications in indexed conferences or journals¹, of which 2 should be accepted for publication at the time of submission. After a unanimous recommendation by the CPC, it is submitted for evaluation by a **Thesis Assessment Board** (TAB) composed of members from at least four different institutions, containing: (1) at least one member from each of the Home and Host HEIs, and (2) at least one member external to the consortium, (3) the chair of the CPC (if local rules at the beneficiaries prevent this, e.g., due to a recent co-authorship between the supervisor and a potential TAB member, the local rules will be respected). The TAB will first state whether the thesis is satisfactory or not. If it is, a public, oral defence of the thesis will be held at the Home university in front of the TAB. Furthermore, the ESR will also present her/his work at a public seminar at the Host university.

¹For conferences in the European GGS Conference Rating (<http://gii-grin-scie-rating.scie.es>) and for journals in Scopus.

2 Eligible applicants

- ESRs from all countries can apply to the ITN in DEDS.
- Applicants must have been awarded the **equivalent of 300 ECTS from his/her Bachelor and Master's degrees** (of which, at least 60 of those ECTS must correspond to the Master's degree) with a major in computer science, from an accredited university that must be listed in the [World Higher Education Database \(WHED\)](#) or be included in the following university rankings: (a) [The Times Higher Education World University Rankings](#), (b) [Academic Ranking of World Universities](#), or (c) [QS World University Rankings](#). In the case your university is not in any of the above lists, but it is officially accredited by the local government, you should contact the admission center (at dedes_admissions@cs.ulb.ac.be) for further assistance.
 - Importantly, note that it is mandatory for applicants who obtained their diploma from a private university to submit an official document emanating from the Ministry of Education of their country stating the recognition of their diploma. More information in Section 5.2.1.
 - In the case that the applicant has not yet obtained his/her master degree at the time of application deadline, he/she may nevertheless apply to the program. In this case, if he/she is accepted, the acceptance will be conditional.
 - Applicants must upload proof of obtained master degree no later than the dates specified on the [web page](#). If you are not able to obtain the degree before the specified deadline, you should contact the admission center (at dedes_admissions@cs.ulb.ac.be) for further assistance. Notice that the possible extension of this deadline depends on your country of origin and the period needed for obtaining the visa for the destination country.
- The applicant must be able to demonstrate **proficiency in English** by means of
 - Either an internationally recognised test equivalent to level C1 in the [Common European Framework of Reference for Languages \(CEFR\)](#). These tests include: Cambridge English, IELTS (academic), TOEFL, etc. See Section 5.1.5 - Table 1.
 - Or, a document issued by the university awarding his/her Bachelor or Master's degree certifying that its tuition language was English.
- The applicant must be, at the date of recruitment, in the first four years (full-time equivalent research experience) of his/her research career and has not been awarded a doctoral degree. The full-time equivalent research experience is measured from the date when the Candidate obtained the degree entitling him/her to embark on a doctorate (either in the country in which the degree was obtained or in the country in which the Candidate is recruited, even if a doctorate was never started or envisaged).
 - Applicants who were awarded the degree entitling him/her to embark on a doctorate in a period longer than the stated, must describe in the cover letter the activities undertaken during this period. These activities cannot be research-oriented.
- The applicant must not have resided or carried out his/her main activity (work, studies, etc.) in the country of the Home Institution for more than 12 months in the 3 years immediately before the recruitment date. Compulsory national service, short stays such as holidays, and time spent as part of a procedure for obtaining refugee status under the Geneva Convention² are not taken into account.

²1951 Refugee Convention and the 1967 Protocol.

3 Application checklist

To guarantee that your application is complete and acceptable, please use the following checklist to ensure that the most important steps of the application process are completed.

(* - mandatory steps)

1. **Register to the online application system*** - Section [4](#)
2. **Fill in the online application form*** - Section [5.1](#)
 - (a) Personal details* - Section [5.1.1](#)
 - (b) Information about your academic qualification* - Section [5.1.2](#)
 - (c) Information about your references - Section [5.1.3](#)
 - (d) Information about your work experience - Section [5.1.4](#)
 - (e) Information about language skills* - Section [5.1.5](#)
3. **Upload your documents to the online application*** - Section [5.2](#)
 - (a) Mandatory documents* - Section [5.2.1](#)
 - (b) Optional documents - Section [5.2.2](#)
4. **Submit your online application form*** - Section [5.3](#)
5. **(In the case of being accepted) Submit your paper documents*** - Section [5.4](#)

4 Registering to the System

Prior the beginning of the application procedure, you first need to register to the DEDS online application portal using your **internet browser**³.

- Link to the application portal: <https://deds.ulb.ac.be/emundus/>

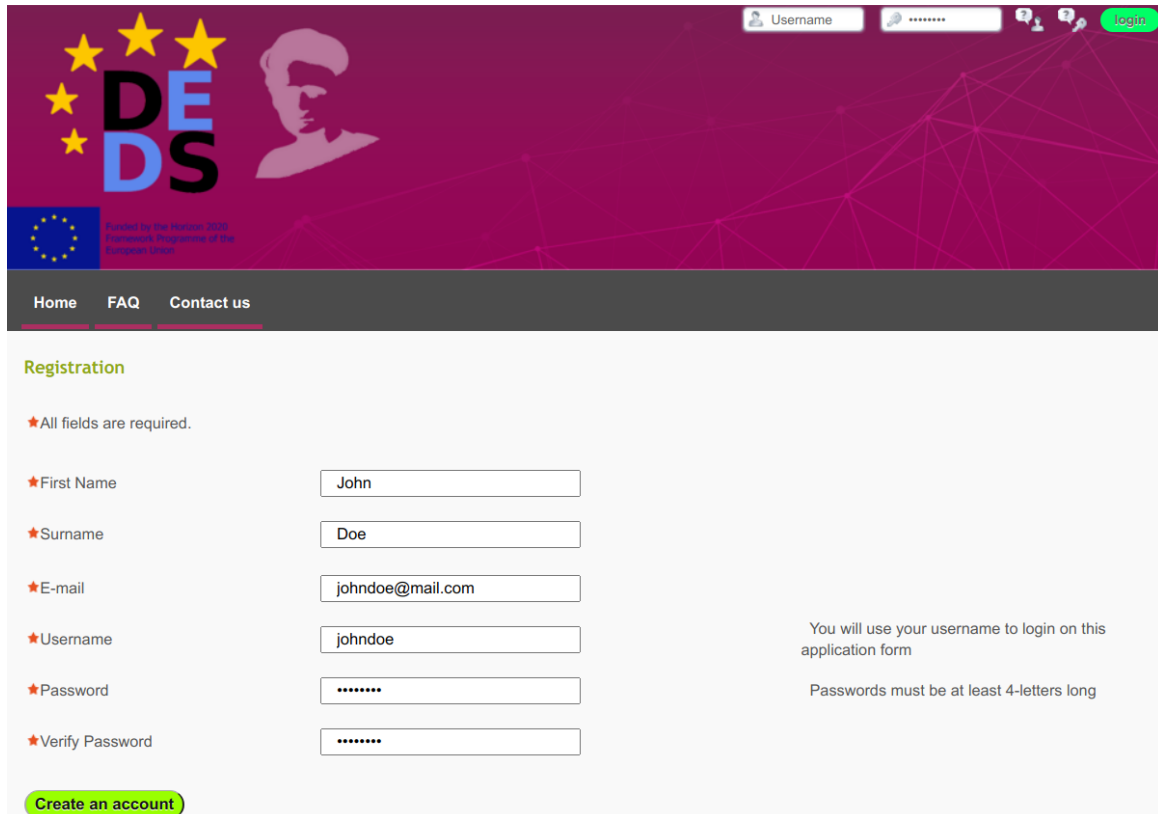
The image shows a web browser displaying the DEDS registration form. The header features the DEDS logo with yellow stars on a blue background, a small portrait of a person, and a navigation bar with 'Home', 'FAQ', and 'Contact us' links. The main content area is titled 'Registration' and includes a note: '★ All fields are required.' Below this, there are six input fields: 'First Name' (containing 'John'), 'Surname' (containing 'Doe'), 'E-mail' (containing 'johndoe@mail.com'), 'Username' (containing 'johndoe'), 'Password' (containing '*****'), and 'Verify Password' (containing '*****'). A green 'Create an account' button is at the bottom left. On the right side, there is a note: 'You will use your username to login on this application form' and a requirement: 'Passwords must be at least 4-letters long'. The top right of the page has a login section with 'Username' and 'Password' fields and a green 'login' button.

Figure 2: DEDS Registration Form

All fields are required in the registration form and they should be filled as follows:

- **First Name:** First (Given) name of the candidate
- **Surname:** Last (Family) name of the candidate
- **E-mail:** E-mail of the candidate
- **Username:** Username for logging in the system
- **Password:** Password for logging in the system (at least 4-characters long)

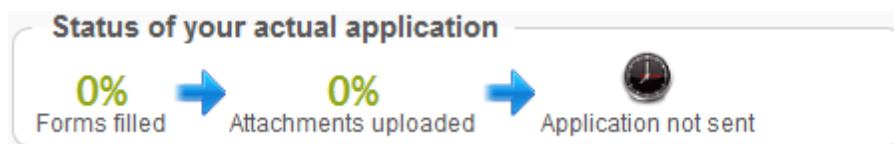
After submitting the form for registration, you will receive an e-mail containing your personal data, along with the necessary login information and link for the confirmation of your e-mail address.

³Please use Mozilla Firefox or Google Chrome browsers for the full functionality of the application web page.

5 Application procedure

Application for the DEDS program consists of the following four **mandatory** steps:

1. *Filling in Application Form*
2. *Uploading Attachments*
3. *Submitting Application Form*
4. *Submitting Paper Documents*



Please keep in mind that early online submissions will be first checked and in case of needed amendments (e.g., missing mandatory files to upload or incorrect Excel file) you would be notified in time as to amend your submission before the deadline.

5.1 Filling in the Application Form

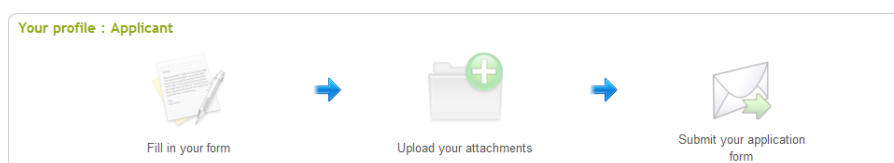


Figure 3: Status of the application prior the beginning of the application procedure

The application procedure starts by filling in the online application form. The form consists of the following sections (forms). After filling each form, you need to confirm it by pressing "Save & Continue" button.

5.1.1 Personal details

A screenshot of the "Personal Details" form. It includes fields for Sex (Male selected), Birth date (18/04/1987), Nationality (Spain), Contact address (Jordi Girona 4, 4-2, 08034 Barcelona), and Mobile phone number (+34 678 123 456). Each field has a red star icon indicating it is mandatory.

This form consists of personal details information (Gender, Birth date, Nationality, Contact address, Mobile phone number). All fields are **mandatory**.

Note: *Please include full prefix with the country code for the mobile phone number.*

The form further requires you to prioritize your preferences for the research projects, which are assigned to a home and a host university, by ranking **at least 5** research projects.

Research project 1 ★
Interactive exploration and analytics on complex Big Data (ARC/AAU)

Research project 2 ★
A platform for prescriptive analytics (AAU/ARC)

Research project 3 ★
Synopsis-driven data integration and federated learning (ARC/UPC)

Research project 4 ★
Please select

Research project 5 ★
Please select

Below, you will be able to specify other research projects of interest (ordered by preference), up to the 15 available positions. The system does not validate duplicate entries, which will be simply ignored.

Other research projects of interest

Other research projects of interest
Please select

Candidates with any kind of disability or need can shortly (absolutely confidentially) describe it, only for the purpose of positive discrimination during the evaluation procedure.

Do you have physical disability or special needs? ★
☒ Yes ☐ No

Please specify ★

Finally, you must specify the list of countries (and corresponding periods) where you have lived in the past 5 years, which affects the eligibility criteria. Be aware that, purposely entering false information may imply automatic exclusion.

Past countries of residence

During the past five years, have you resided in another country? ★
France

From ★ 01/12/2015 To ★ 30/12/2016

During the past five years, have you resided in another country? ★
Belgium

From ★ 01/01/2017 To ★ 30/12/2020

5.1.2 Academic qualifications

To continue with the application procedure you need to provide the information about your **main bachelor degree** and your **master degree**. Degrees with a major in Computer science are preferred. However, other degrees will be also acceptable. In that case, please provide as much information as possible about your working experience (Section 5.1.4) in the domain of Big Data or Computer Science in general in order to counterbalance the fact that you do not have a major in Computer Science. That will possibly increase your overall ranking.

First, you need to provide academic information about the title, the institution and the date when the degree is obtained.

The screenshot shows a web form titled "★ Mandatory fields" with a sub-section "Main Bachelor". It contains the following fields:

- Name ★**: A text input field containing "Software Engineering".
- Web page containing the curriculum of the studies ★**: A text input field containing "http://www.etf.rs".
- Country**: A dropdown menu with "Serbia" selected.
- University ★**: A dropdown menu with "Univerzitet u Beogradu" selected.
- Delocalized campus**: Two radio buttons, "No" (selected) and "Yes".
- Date of graduation ★**: A date input field containing "01/07/2010" with a calendar icon.

- The **Name** of the title,
- **Web page containing the curriculum of the studies**,
- **Country** and
- **University** where the title has been obtained. If you pursued your studies in a **delocalized campus** (i.e., an international campus abroad from your home university) check the delocalized campus option.
- A statement whether the title has been obtained from a Private institution/university, or not.
- **Date of graduation** when the title was obtained (this refers to **your** graduation date). This is only required for your main title.

Please note that to be able to apply for DEDS, the institution where you obtained your title must be listed in the [World Higher Education Database \(WHED\)](#) or be included in the following university rankings: (a) [The Times Higher Education World University Rankings](#), (b) [Academic Ranking of World Universities](#), or (c) [QS World University Rankings](#). In the case your university is not in any of the above lists, but it is officially accredited by the local government, you should contact the admission center (at deds_admissions@cs.ulb.ac.be) for further assistance.

Main Master

Name ★

Web page containing the curriculum of the studies ★

Country


Please select ▼

University ★

Please select ▼

Delocalized campus

No ☒
Yes ☐

Date of graduation ★


In addition, in the case you stated that the title has been issued from a private institution, you need to provide additional documents, issued by the local government clearly stating that the program studied, and the title obtained is officially recognized (see Section 5.2.1).

The **web page containing the curriculum of the studies** is the web page of your school showing the details about the courses being part of your degree. In case your university does not have such web page you can alternatively upload the scanned or digital version of this curriculum together with your transcripts and clearly explain this in your cover letter.

Besides filling in the above form, you are also **required** to download two copies of the following Microsoft Excel spreadsheet for self-evaluation and fill them in separately with the courses that you took in your main bachelor and master program. Later you **must** upload the filled in spreadsheets as “*Self-evaluation sheet for the main bachelor*” and “*Self-evaluation sheet for the main master*” in Mandatory attachments (see Section 5.2.1).

Note: *The self-evaluation excel spreadsheet contains macro commands to support the introduction of different types of grading systems (numerical/textual) and thus to properly calculate the mark the macro functionalities **must** be enabled in Microsoft Excel.*

Please read the instructions provided in the first sheet of the self-evaluation excel file.

Failing to properly fill in this spreadsheet, unprotecting the cells or changing the formulas inside the spreadsheet will result in automatic exclusion of the applicant from the selection process.

Download here the mandatory template of the self-evaluation spreadsheet!

You can also download the examples of already filled in self-evaluation spreadsheets for the cases of [bachelor with numerical marks](#), [bachelor with textual marks](#), and [master with numerical marks](#)⁴.

⁴Use these examples only for a reference, and always use the above template for filling in your self-evaluation file from scratch.

Average Mark Declaration			
First Name:	John	Last Name(s):	Doe
Nationality:	Ethiopian	Passport number:	123456
Evaluating title:	Management information systems	Obtaining date (dd/mm/yyyy):	06/08/2004
University:	Unity University	Country:	Ethiopia
Minimum local credits to graduate:		146	
Official number of years to study:		3	
Type of the marks:	Minimum passing mark: 1		
Numerical mark (e.g., 1 - 10)	Maximum passing mark: 4		

TOTAL	
ECTS	180
Mark (1 - 4)	3,34931506849315
ECTS ACM Major	138,082191780822
ECTS ACM Minor	14,7945205479452
ECTS CS Subject	152,876712328767
Local credits total	146

SELF-EVALUATION FORM							
	Course	Original credits	ECTS conversion	Original Numerical Mark	Original Textual Mark	Mark (1 - 4)	
1	information technology 1	8	9,8630136986	4		4	Comp Systems Engineering
2	introduction to business	3	3,698630137	3		3	Legal / Professional / Ethics / Society
3	college english 1	1	1,2328767123	4		4	Interpersonal communication
4	management information systems	7	8,6301369863	3		3	Management of Info Systems Org.

Figure 4: Self-evaluation of student's average mark - first spreadsheet (example)

In the spreadsheet shown in Figure 4 you are first required to provide your personal data and academic data for the evaluated title:

- First name (First name from registration form)
- Last name(s) (Surname(s) from registration form)
- Nationality
- Passport number
- Evaluating title (Your main bachelor degree title that is evaluated in this spreadsheet)
- Obtaining date, i.e., the date when you obtained your evaluating title (**expected date if not obtained yet**)
- The university at which you obtained this title
- The country where you obtained this title

In the second part of the spreadsheet, due to heterogeneity of the titles, you are asked to provide the following information about the grading system of the evaluating title so the title can be equalized both considering the grades and the credits obtained to a common system used for evaluation⁵:

- Number of local credits to graduate. If this does not appear in the transcripts, just fill it with the sum of all local credits you took
- Expected total number of years in the degree to obtain the title (i.e., to graduate). Importantly, it **does not refer** to the number of years it took you to graduate but to the number of academic years
- Type of the marks each course is graded with
 - **Numerical mark based on ascending intervals** (e.g., 1-10, 50-100, 1-30, 10-20 etc.). For numerical marks you are additionally required to provide the *minimum* mark for **passing** the course and the *maximum* mark that can be obtained.
 - **Textual mark** (e.g., A-F, Excellent - Passing). For textual marks or numerical marks that are based on the set of enumerated values (i.e., not intervals) or descending values (e.g., 1 being highest - 4 being lowest), you are additionally required

⁵Student's passing marks are equalized to the marks inside the 1-4 interval, where 1 stands for the fair (lowest passing mark) and 4 stands for the outstanding (highest mark). Local credits student obtained are equalized to the corresponding number of ECTS credits.

to provide the distribution of your local marks into four different intervals (1 - 4), where 1 stands for the fair (lowest passing mark) and 4 stands for the outstanding (highest mark). Only the **passing** marks must be considered. The distribution of the marks depends on the number of marks and needs to follow the following rule: “*Each interval must contain less or equal number of marks that the adjacent lower one.*”

After you provided the data about the local grading system of your title, you should fill the main part of the spreadsheet with the courses taken within the evaluated title. **The courses need to be introduced in the spreadsheet in the same order as they appear in the transcript you provide.** The following data about each taken course is needed:

- Course name
- Number of the original credits (in the local grading system). If all courses have the same weight (or the number of credits does not appear in the transcripts), just write “1” in all these cells.
- If the marks are of numerical type the *original numerical mark* is required. Otherwise, the *original textual mark* is required.
- The computer science subject that the course covers according to [The Glossary of Computer Science courses](#) (candidates may only choose one subject, either *ACM major* or *ACM minor* per course). Only the maximum of 10% out of all computer science subjects can be assigned to ACM minor subjects. If your title carries more than 10% of ACM minor out of all computer science subjects please leave both ACM minor and ACM major fields empty for those exceeding the maximum percentage allowed.

Important notes (please, double check, this is a list of typical mistakes made when filling the Excel template):

- You **must** use the same grading system as in the provided transcripts. In the case that both numerical and textual marks are available, you must mandatorily choose the numerical ones.
For courses graded with pass/fail type of mark, you should only provide the credits that the course carries and not the mark obtained.
- You must provide information about the Computer Science subject that the courses covers, for as many courses as possible, i.e., choose ACM Minor or ACM Major. Importantly, do not leave these two columns completely empty, as this will prevent you from continuing your application procedure.
- Each cell/text colored in **red** means that a mistake was made. In that case, please, check that the entered data is in accordance with the explanations above.
- In case that your bachelor studies are separated in a 2-years high diploma and a 2-years bachelor, you should consider both degrees for the calculation of credits and marks, and later provide all corresponding certificates and official transcripts. In this case, the data about the evaluated title (name, date, university...) should come from the second degree.
- The total ECTS should be greater than or equal to 300 ECTS. At least, 60 of those ECTS must correspond to a Master’s degree.
- If you have not obtained your master diploma yet, please follow these instructions when filling in the self-evaluation sheet:
 - If a course is being taken but not yet finished it should be added to the sheet (but leave the mark fields empty),
 - If a course is neither being taken nor enrolled yet, it should not be added to the self-evaluation sheet. This may cause the field “Local credits total” to become red, indicating that not all the local credits have been inserted. In such case you can ignore this error.

- In case you changed your home university or did a student exchange at a different university from your home university during your bachelor studies, for every course not taken at the university that issues your bachelor diploma please specify that the course has been transferred and recognized in the cover letter. Also, if you have a block of transferred credits in your transcripts, try to assign it to an ACM major or minor whenever possible.
- In case the local textual marks of your university consists of less then 4 passing marks (e.g., A,B; A,B,C) distribute the marks in the self-evaluation sheet in the following way (Notice that such distribution is a fair middle solution for equalizing your marks to the common evaluation range, that avoids creating outliers as well as leaving candidates out of the selection.):
 - The case of 3 passing marks (A, B, C): 1-C; 2-; 3-B; 4-A
 - The case of 2 passing marks (A, B): 1-C; 2-; 3-; 4-A
- In case your university uses different mark ranges for different courses you should follow these instructions to scale your marks up to the same level:
 - You need to homogenize your marks to the common scale (i.e., 50-100, 50 being the minimum passing and 100 the maximum passing mark), before entering them to the self-evaluation sheet.
 - If you have a local grading system [a,b], 'a' being minimum passing and 'b' maximum passing mark, and you want to scale mark X to a common system [50,100] then you need to use this formula:

$$\frac{100-50}{b-a} \times (x - a) + 50$$

- **(x - a)** translates the mark in local system - i.e., calculates the distance from the minimum, the fraction is a scaling factor so you scale the mark with it and translates it back in the new system with **+ 50**
- This formula should be applied to all your marks each time replacing a and b with the ranges the mark is inside and x with an actual mark. (e.g, [a = 30, b = 75])
- You should explain this case carefully in your cover letter so it would be clear to the selection committee.

Once you enter all courses from your main bachelor/ main master degree in the spreadsheet you will automatically obtain the corresponding calculated values (Figure 4):

- *ECTS*, i.e., the total number of ECTS credits,
- *ECTS CS Subject*, i.e., the number of ECTS credits in Computer Science, and
- *Mark (1-4)*, i.e., weighted average mark rounded to two decimal places.

Note: Further details of calculations for the evaluating title are given in [Appendix A](#)

The filled in spreadsheet file(s) **must** be then uploaded as a Mandatory attachment (“Detail of the calculation for the main bachelor” and “Detail of the calculation for the main master”). Furthermore, you also need to upload your “Bachelor certificate” and “Master certificate” as well as “Official transcripts” (showing the list of courses, with the assigned weight and mark) corresponding to the degree. More information on this, in [Section 5.2](#).

Besides the main bachelor/master, you can repeat this process for other bachelors/masters you have or any relevant course you took. In those cases the same calculation of the weighted mark is needed as for the main bachelor. You can enter 0 or more additional degrees. To enter more than 1, use the plus button (minus button to remove it).

Other courses that are relevant for this application/evaluation procedure can be entered. Besides the main information about the course (Name, Curriculum of the course, Institution,

Other Bachelors/Masters

Name ★

Web page containing the curriculum of the studies ★

Country ★

University ★

Delocalized campus
 No ☒ Yes ☐

Duration) you are asked to provide the area to which the course belongs (Computer Science, Business Administration or Other).

Other Courses Taken

Name ★

Web page containing the curriculum of the studies ★

Institution ★

Area ★

Area ★
 Please select
 Computer Science
 Business
 Other

Duration (Hours) ★

Save & Continue

5.1.3 References

In this form you are expected to provide information about the persons you have asked to write a letter of recommendation for you. You can provide between 0 and 3 reference letters, hence the references are not mandatory for your application. Academic reference letters (from university professors) are preferred but you may as well provide reference letters from other relevant persons (e.g., your employers).

First, contact a referee who knows you (e.g., the professor that lectured you in some course), and ask him/her whether he/she is willing to provide the recommendation for you. For each referee introduce the data in the corresponding form. Indicate the *full name*, the *homepage*, optionally the *H-factor* (see below), the *position occupied*, the *country*, the single correct *email address* of the referee, the *telephone number* and the *postal address*. In case your referee does not maintain his/her homepage you should provide any relevant web page containing

First Reference

Name

Homepage ★

H-factor ★

Position ★

Email ★

Telephone number ★

Contact Address ★

Country ★

professional information about him/her. For example his/her profile on [DBLP](#) or [Linkedin](#). Please double check the above information (especially the referee's email address) to avoid delay in notifying your referee and obtaining your letter of recommendation.

Optionally, for each referee, you can provide his/her H-index (H-factor)⁶. You can use various web sites and tools in order to calculate the H-index (e.g., web sites: Google Scholar, tools: Publish or Perish). We show here how to compute the H-index of your referee using [Google Scholar](#). Write the name of the referee in the text box and choose the right one among those proposed, if more than one (see Figure 5). In case you find your referee's H-index using any available web site, you should additionally insert the link to the web page dedicated to your referee on that web site (or tool). Otherwise, in case you do not provide your referee's H-index or it is zero (0) no additional information is required.

The referee you have chosen will get an automatic e-mail asking him/her to fill a brief report (4-5 questions) about you. The referees are then supposed to upload the corresponding reference file into the system until the deadline specified in the [web page](#).

You will be able to know whether your referees have submitted their letters by getting an e-mail stating that the report has been uploaded.

Importantly, notice that your online application submission is independent from the submission of the letter of reference by your referee. This means that your letter of reference can be submitted after you submit the online application, but within the corresponding deadline.

Please bear in mind that it is your responsibility to make sure that the referees you have chosen upload their letters before the corresponding deadline. Only references associated with an uploaded letter will be taken into account by the selection committee when evaluating your application. Additionally, we may contact your referees for clarification or further information about you.

⁶“The h-index is an index that attempts to measure both the productivity and impact of the published work of a scientist or scholar.” - [Wikipedia](#)

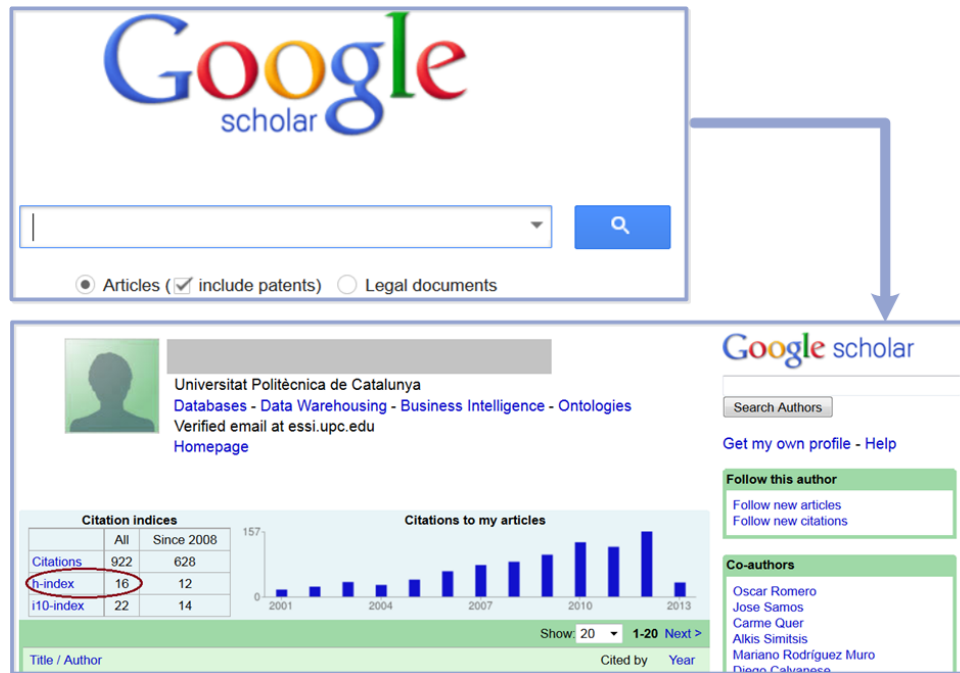


Figure 5: Calculation of the H-index for the referees

In the case that for some reason (e.g., incorrect e-mail provided) you prefer to change or delete some of the referees or your referee(s) encountered a problem during the process, just delete that referee and introduce new information again. Each time that referee information is added an automatic e-mail will be sent to him/her.

5.1.4 Work experience

In this form you should enter your professional experiences that are the most relevant to DEDS. You can enter 0 or more work experiences. If you do not want to enter any work experience, use the minus button before saving the form. To enter more than 1 work experience, use the plus button.

For each work experience, indicate the *name* and *homepage* of the company, the *position* you occupied, if this work experience was done in the context of either an *internship* or *placement*⁷ (by selecting 'yes'), the *duration* in years, and upload the document in PDF that proves your work experience. This should typically be your *contract*, i.e., the legal document that states and explains a formal agreement of your employment, in English. For long contracts only the relevant parts need to be translated, like dates (i.e., duration), tasks, category etc. Alternatively, you can provide another official document stating your work experience and information above (e.g., internship certificate, proof of salary). Besides this main information about the employment you are also asked to provide the *Area* to which your job belonged (Business Intelligence, Computer Science, Business Administration or Other).

Please note that in the case of self-employment i.e., you have/had your own business you need to provide corresponding documentation (e.g., certificate of Incorporation, certificate to Commence Business, company Code etc.) to prove that and you should further clearly explain this situation in your cover letter.

⁷A placement or an internship is a usually short time training period spent to acquire a working experience. Usually the term placement is used for a training period in a company, whereas an internship may refer to a training period spent in the academic world, like for instance in a research laboratory.

Professional experience

Organisation ★

Country ★

Spain ▼

Homepage ★

Position ★


Area ★

Business Intelligence ▼

Placement/Internship ★

☐ Yes
☒ No

Start date ★



Duration (Years) ★

Proof document of work experience ★

contract.pdf

5.1.5 Language skills

In the last application form, you are asked to provide the proof of your English proficiency. There are three possibilities to prove your English proficiency:

1. You are a native English speaker. You should upload a document (an official certificate or a sworn statement explaining your case) showing that you were born or grown up in an English speaking country (e.g., high school certificate).

Language skills

Please select

☒ Native english speaker
☐ Certificate
☐ Studies in english

2. **Provide a certificate of an English test** stating a result equivalent at least to level C1 in the CEFR (Common European Framework of Reference for Languages). The following English certificates are acceptable with their corresponding minimum grades.

Language skills

Please select

☐ Native english speaker
☒ Certificate
☐ Studies in english

Name of certificate *

TOEFL Internet Based

Please select

Business English certificate (BEC);
 Business Language Testing Service (BULATS);
 Cambridge
 Certificate in English of Michigan University
 International certificate in Financial English (ICFE);
 International English Language Testing System (IELTS); - Academic
 International Legal English certificate (ILEC);
 London Test of English (LTE);
 Spoken English Test for Business (SETB);
 TOEFL Computer Based
 TOEFL Internet Based
 TOEFL Paper Based
 TOEIC
 Trinity Integrated Skills in English examinations (ISE);

Figure 6: Drop-down list of acceptable English proficiency certificates

Table 1: Acceptable English proficiency certificates

Acceptable certificates of English proficiency	
Certificate name	Minimum acceptable grade
Cambridge General English Exams	First Certificate - A
Cambridge Business English certificate (BEC)	Vantage-A
Cambridge International certificate in Financial English (ICFE)	C1 Pass
Cambridge International Legal English certificate (ILEC)	C1 Pass
Business Language Testing Service (BULATS)	75
Cambridge International English Language Testing System (IELTS) - Academic	7
Spoken English Test for Business (SETB)	Expert
London Test of English (LTE)	Level 4 - Pass
Certificate in English of Michigan University (ECCE)	Proficiency (ECPE)
Test of English for International Communication (TOEIC) - Listening and Reading	945
Test of English for International Communication (TOEIC) - Speaking and Writing	400
Test of English as a Foreign Language (TOEFL) ⁸	
Internet Based	95
Computer Based	270
Paper Based	637

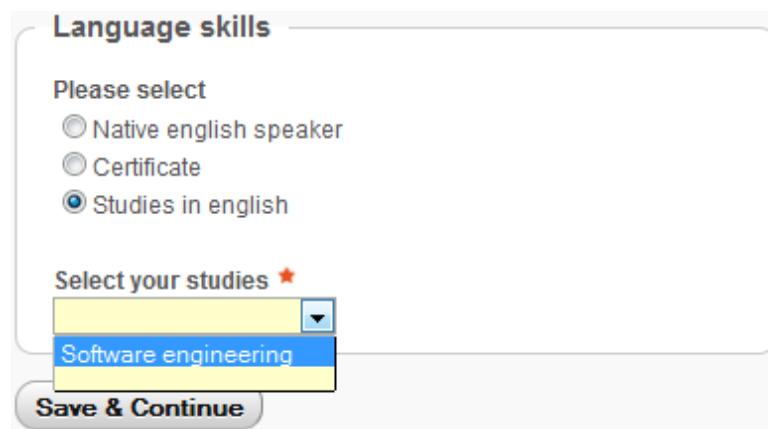
⁸The ETS institution code of Université Libre de Bruxelles for automatic TOEFL results delivery is 0550.

The period between the proficiency test results and this application should not exceed two years. If the test is more than two years old, then the applicants must show that they have been practicing English during the last two years (e.g., by providing a certificate of some courses taken in English during the last two years besides the certificate of the English test).

Please note that even though you are allowed to send the official paper form of your English test results after the online application deadline, you are required to provide at least the test score before the application deadline together with the screenshots of the online results.

Due to the potential difficulty in obtaining English proficiency certificate in time before the application deadline, DEDS Admission Team can exceptionally grant the candidates an extra time for providing the proof of their English skills, as long as they submit the proof of scheduled exam for one of the acceptable certificates, and they provide the acceptable test results in time for the recruitment to the programme. Importantly, in case of acceptance, such candidates will be considered as conditionally accepted, and they will not be able to join the programme without providing a valid proof of their English language skills (see EC2: <https://deds.ulb.ac.be/#Apply>).

3. The tuition of at least one of your bachelors or masters provided in “*Academic qualification*” was delivered in English (**Studies in English**). You should later upload a document (certificate) from your university stating that you followed this program in English.



Note: Having an internationally recognized English certificate (e.g., TOEFL, Cambridge, etc. see Table 1) is preferred to graduating from studies delivered in English.

The documents that prove your English proficiency must be uploaded in the “*Mandatory attachments*” part (“*A certificate or proof of English proficiency*”). More information on this, in Section 5.2. After you enter the language skills information the first phase of the application process (Filling in Application Form) is completed.

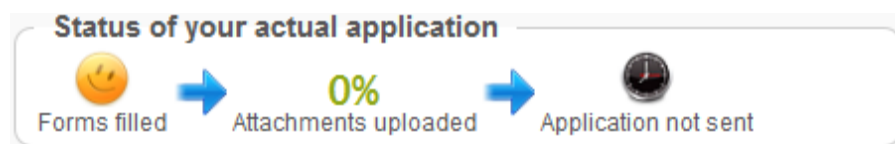


Figure 7: Status of the application after the online application forms are filled

5.1.6 Other relevant information

If you want to provide additional information relevant to your application that is not covered by the previous forms (e.g., publications), please write it down in the cover letter.

5.2 Uploading Attachments

To continue with the application process you are required to upload necessary documents into the application web page (**✗ mandatory attachments**). You are also welcomed to upload additional documents (**✗ optional attachments**) clarifying any possibly vague situation relevant for the application process.

All documents to upload must not exceed 2M bytes.

Each attached document (containing text) must be translated in English and the translation must be officially certified (e.g., by a sworn translator).

5.2.1 Mandatory Attachments

The documents that you are required to upload are the following:

- **Photo:** A recent personal photo, in passport size, only in **jpg, jpeg, png** or **gif** formats only.
- **Cover letter:** A letter in English motivating your interest and application for DEDS. Carefully explain your competitive background and your professional perspectives, and how DEDS will help you in achieving them and hence, the reasons why you should be elected and granted in front of others. Also, use the cover letter to clarify any possible ambiguity in your application procedure. **PDF** format only.
- **Passport:** A scanned copy of your valid passport showing your personal information (name, birth date, birth place, validity period, gender, signature and passport number), in **PDF** format only.
- **CV:** Your personal comprehensive Curriculum Vitae, in English, in **PDF** format only. [Europass](#) CV format is preferred.
- **Main bachelor certificate:** Certified English translation of your main Bachelor's degree, in **PDF** format only.
- **Official transcripts for the main bachelor:** University's certified statement of your academic record for the main bachelor degree, translated in English, in **PDF** format only. Official transcript should show the list of courses taken during the degree, the weight of each course (according to your local system), and the mark obtained.
- **Self-evaluation for the main bachelor:** The completed self-evaluation spreadsheets (Figure 4) filled with the information from your main bachelor degree, in **xls** or **xlsx** format.
- **Main master certificate:** Certified English translation of your main Master's degree, in **PDF** format only. Optionally, if you have not finished your master studies, you should upload the official document issued from your university about your current status and the *expected* graduation date. Students applying for a scholarship must upload proof of obtained master degree no later than the dates specified on the [web page](#). In the case you are not able to obtain the degree before the specified deadline, you should contact the admission center (at deds_admissions@cs.ulb.ac.be) for further assistance. Notice that the possible extension of this deadline depends on your country of origin and the period needed for obtaining the visa for the destination country.
- **Official transcripts for the main master:** University's certified statement of your academic record for the main master degree, translated in English, in **PDF** format only. Official transcript should show the list of courses taken during the degree, the weight of each course (according to your local system), and the mark obtained.
- **Self-evaluation for the main master:** The completed self-evaluation spreadsheets (Figure 4) filled with the information from your main master degree, in **xls** or **xlsx**.

- **Other Bachelor/Master certificate:** University’s certified statement of the academic records for other Bachelor/Master degrees, in **PDF** format only.
- **Other Official transcript:** University’s certified statement of your academic record for other Bachelors/Masters degrees, in **PDF** format only.
- **Self-evaluation for other degrees:** The completed self-evaluation spreadsheets for the number of ECTS for other bachelor or master degree, in **xls** or **xlsx** format.

Notes:

- *A self-evaluation excel file filled in the same manner as the previous one, is **mandatory** for each additional bachelors/masters title that is added in the application form.*
- *Bachelor/Master certificate as well as the official transcripts and detail of the calculation are **mandatory** for each additional bachelor/master title that is added in the application form.*
- **A certificate or proof of English proficiency :** In the case that you obtained one of the certificates listed in Section 5.1.5 (Table 1), upload the copy of the certificate. Otherwise, you are required to provide other document(s) that prove(s) your English proficiency, e.g., an official document showing that you were born or grown up in an English speaking country, or an official document showing that at least one of the studies listed in “*Academic qualifications*” were taught in English. **PDF** format only.

5.2.2 Optional Attachments

- **Master thesis:** You are highly encouraged to submit the document of your master degree thesis or final year project, in English and in **PDF** format only.
- **Other certificate:** Other certificates for other courses taken, translated in English and in **PDF** format only.
- **Letter of reference 1, 2 and 3:** All letters of reference, must be uploaded by your referees, in English and in PDF format only.

Each uploaded document may have a short textual description accompanied with it.

After the appropriate documents are chosen to upload these documents press *Send attachments* button both for mandatory and optional attachments.

5.3 Submitting Application Form

After the mandatory attachments are uploaded, you are now allowed to submit your online application. We kindly remind you that early online submissions will be first checked and in case of needed amendments (e.g., missing mandatory files to upload or incorrect Excel file) you would be notified in time as to amend your submission before the deadline. To submit your application, just click the “*Send your application*” link (Figure 10) and then on the following page declare the correctness of the provided data by checking the checkbox *Yes* and finalize the submission by pressing the “*Submit my form!*” button.

After you submit your application, in case you want to upload or change the documents or data previously provided, you must contact the admission center (deds.admissions@cs.ulb.ac.be) for further assistance. Your application will be marked as incomplete, so you can go back and make the modifications. Importantly, once you finish modifying your application, you must resubmit the application following the same process as the first time. After submitting your application, you are also allowed to print your application (Figure 11).

Send attachments

Photo[+/-]
A recent passport photo
File: Choose File No file chosen
Short description:
Please, only jpg;jpeg;png;gif

Cover letter[+/-]
A letter of motivation explaining your motivation to join DEDS, and why you should be elected (in English)(PDF only)
File: Choose File No file chosen
Short description:
Please, only pdf

Passport[+/-]
A copy of your passport (PDF only)
File: Choose File No file chosen

Proof of diploma validity[+/-]
It is mandatory for applicants who obtained official document emanating from the Ministry of Higher Education and Scientific Research. More information in the [application guide](#)

Other Bachelor/Master certificate[+/-]
Certified translation (in English) of other Bachelor/Master certificate

Other Official transcript[+/-]
Official Transcripts of records for other Bachelor/Master certificate

Other self-evaluation sheet[+/-]
Details of the calculation for other number of Bachelor/Master certificate defined in Academic Qualifications.

BSc thesis[+/-]
Document of your bachelor degree thesis or dissertation

MSc thesis[+/-]
Document of your master degree thesis or dissertation

Other certificate[+/-]
Other certificate

Figure 8: Section for uploading mandatory and optional attachments

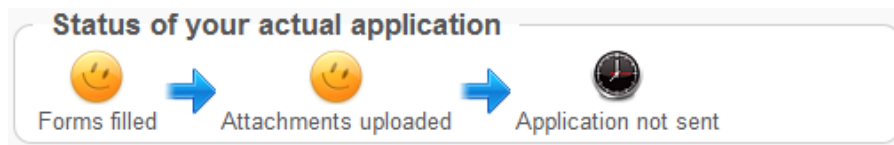


Figure 9: Status of the application after the at least mandatory attachments are uploaded

Checklist

Congratulations your application is complete!

We have now all the compulsory documents in electronic form for receiving your application. Remember that you have to submit certified true copies of all official documents by s-mail to the **contact address** to be received by the **corresponding deadline**.

Check also that you do not need to add specific-case documents (BSc or MSc thesis if in English, for example). You can still upload new files or send to print your application.

Send your application

Figure 10: Submitting online application form

5.4 Submitting Paper Documents

After you have uploaded all mandatory documents and submitted the online application form, you need to prepare the necessary paper copies of the documents.

Importantly, paper copies must only be sent in case you are accepted into the programme (check the timetable [here](#)). However, you are strongly advised to gather them during the application period and send the documents shortly after

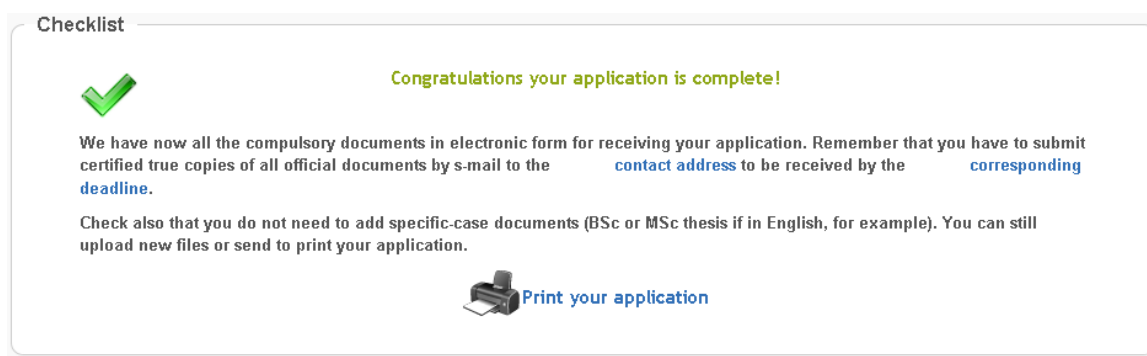


Figure 11: Application successfully submitted - (*Print your application*)

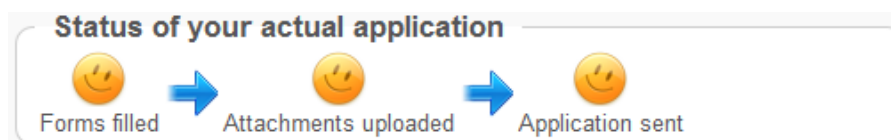


Figure 12: Status of the application after the application is submitted

acceptance notification to avoid further problems. Not sending the documents (or not receiving them on time) will imply automatic rejection. Please, note that the DEDS consortium is not responsible for late deliveries (s-mail delivery may take up to one month in some cases).

At least the following paper documents (similar to those explained in Section 5.2) must be sent by s-mail ⁹ (i.e., paper mail, postal mail, land mail, ...) to our contact address which can be found at the [Contact](#) section:

- Paper copy of your passport (pages that contain name, birth date, birth place, validity period, sex, signature and passport number).
- Bachelor certificate(s).
- Official transcripts.
- Proof of English proficiency. If your English proficiency results as in the case of TOEFL are sent automatically by the testing center you may use the code 0550 of Université Libre de Bruxelles instead of sending them by regular mail.
- Proof of contracts for your work experiences, as explained in Section 5.1.4.
- Master certificate(s).

All document **copies** are supposed to be:

1. Provided in **English** (translated if originals are not in English) **and**
2. **Stamped** by some public institution certifying that the copies correspond to the originals.
 - If your country does not allow certifying true copies of official identification documents (e.g., ID and passport), please contact the admission center (at deds_admissions@cs.ulb.ac.be) for further assistance.
 - The stamp is supposed to be in English. Otherwise, we advise you to provide the translation of the stamp by the sworn translator along with the document translation (if original document is not in English).
 - Some of the institutions where you can get your copies stamped are:
 - Any embassy or consulate of EU member state in your home country.
 - Any accredited government and public administration of your country (e.g., courts in majority of countries provide “*Hague apostille*” stamp).

⁹ “s” stands for “surface”, i.e., standard/traditional mail.

– Notary.

What should you do?

- You should take both the original and copy of your document to the chosen institution and their administration should check that the documents correspond and stamp the copy certifying so. Furthermore, if the original document is not in English then you should provide the translation of the document by the sworn translator together with the translation of the stamp (if necessary).

In the case that you want to send the **original** documents already issued in English, which is **not advisable** as they will not be sent back, there is no need to additionally stamp them. However, all other official documents (copies and translations) need to be attested.

Importantly, notice that failing to send the complete and fully certified documents will result in the immediate rejection of your application.

A Calculation details for title self-evaluating

Respecting the minimum and maximum mark introduced in Section 5.1.2, the marks between the minimum passing mark and the maximum one will be distributed into four intervals (from 1, the lowest, to 4, the highest) defined as follows. Let M and m be, respectively, the maximum and minimum passing mark, and let $s = (M - m)/4$ be the size of the intervals. Then, the intervals are defined as follows:

1. $1 = [m, m + s]$.
2. $2 = (m + s, m + 2s]$.
3. $3 = (m + 2s, m + 3s]$.
4. $4 = (m + 3s, M]$.

For example, the marks in the given grading system:

Minimum passing mark	10
Maximum passing mark	20

Are automatically distributed in a following manner:

Table 2: Example of grade conversion for interval-based numerical marks

Local mark	Score
[10-12.5]	1
(12.5-15]	2
(15-17.5]	3
(17.5-20]	4

1. Textual mark

Some examples of the correct distributions of the marks in the textual (non-interval) grading system are given in the following tables:

Table 3: Example of textual mark equivalences

Mark equivalence 1	D	C	C+	
Mark equivalence 2	B-	B		
Mark equivalence 3	B+	A		
Mark equivalence 4	A	A+		

Table 4: Example of numeric non-interval mark equivalences

Mark equivalence 1	4	3.7	3.3	
Mark equivalence 2	3	2.7	2.3	
Mark equivalence 3	2	1.7		
Mark equivalence 4	1.3	1		

Calculations:

With the above data provided, the $ECTSconversion = \frac{60 \times original_credits}{\frac{min_grad_credits}{exp_grad_years}}$ and the **1-4 mark** equivalence is automatically calculated. Along with that, the total evaluating values are calculated automatically:

- **ECTS**, the total number of converted ECTS credits of the evaluating title

- **Mark (1-4)**, average mark weighted with the number of ECTS credits obtained per each course.

$$AverageMark(1 - 4) = \frac{\sum (course's\ mark \times course's\ ECTS)}{\sum course's\ ECTS}$$

- **ECTS ACM Major**, the total number of ECTS credits for the courses covering the ACM Major subjects.
- **ECTS ACM Minor**, the total number of ECTS credits for the courses covering the ACM Minor subjects.
- **ECTS CS Subject**, the total number of ECTS credits for the courses covering the computer science subjects (major or minor).