# Request for Establishment of a Doctoral School

*Doctoral School in Science and Engineering (DSSE)*

# 1. General information

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| * 1. **Head of Doctoral School**

*(Nominated by the dean(s) of the faculties involved. Approved by the UL president)* |
| <Name to be included.> |
| **1.2 Participating RUs / ICs** |
| All Research Units in FSTC and Interdisciplinary Centres active in Science, Technology, Engineering, Mathematics (STEM) |
| **1.3 External participants (Universities or Research Institutions)** |
| External participants are listed in the programme descriptions. |
| **1.4 Degree(s) awarded***(Consult http://wwwen.uni.lu/studies/doctorate for UL list of titles from which to select)* |
| The PhD title awarded by the University of Luxembourg is *Docteur de l’Université du Luxembourg* with the mention of a speciality. All FSTC related specialities will be possible.If possible, the Doctoral School would appreciate to award: Doctorate in Science / Doctorate in Engineering. |
| **1.5 Expected starting date** |
| 1st of September 2016  |
| **1.6 Expected yearly input and total number of doctoral candidates** |
| ~100 for a total of ~400 students  |

# 2. Research Theme and Programmes

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| **2.1 Research aim and thematic focus of the Doctoral School***(See section 4.1 of the Framework Document)* |
| Research and research training in STEM subjects. Further details are provided in the descriptions of the research programmes. |
| **2.2 Scientific and Training Objectives** |
| * to perform cutting-edge research in science and engineering on an internationally leading level and to integrate doctoral candidates into scientific and/or industrial networks.
* to foster the professional development of the doctoral candidates, training them in critical thinking and analysis, and making them aware of the values on which scientific research is founded.
* to provide an optimal environment for pursuing doctoral studies at an internationally competitive level and, when appropriate, in a broad interdisciplinary context.
* to help candidates interested in commercially applied research to identify opportunities for and facilitate/promote technology transfer between academia and in­dustry.
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| **2.3 Description of the Research Theme, including long-term perspective** *(Should have width and depth to provide projects for several generations of doctoral candidates. At least one page:* *background, developments, challenges and scope of the research, why it is of interest for doctoral candidates ) (See section 4.1 of the Framework Document)* |
| Details are provided in the descriptions of the programmes. |
| **2.4 Description of Research Programmes** *(See section 4.1 of the Framework Document)* |
| The Doctoral School will start with the following research programmes:Doctoral programme in Systems and Molecular BiomedicineDoctoral programme in Computer Science and Computer EngineeringDoctoral programme in Computational Sciences Doctoral programme in Mathematics and ApplicationsDoctoral programme in Physics & Materials ScienceDoctoral programme in Civil Engineering Doctoral Programme in Mechanical/ Electro and Communications EngineeringDoctoral Programme in Geodesy and GeophysicsOther programmes can be added when the school is running. Current programmes can be adjusted according to the need. |
| **2.5 Research programmes of the faculty/RU/ IC to which the school is linked** |
| The doctoral research programmes are closely linked to and often even integrated in the various research activities (programmes, projects, etc.) of the participating Research Units and Interdisciplinary Centres. |
| **2.6 Career perspectives***(Academic as well as non-academic)* |
| The Doctoral School prepares doctoral candidates for leading positions in academia (e.g. university professors, researchers, teachers) and in the non-academic domain (e.g., small and medium enterprises, industry R&D, consultancy, financial sector, secondary school teacher). This goal is achieved by focused training in the discipline of study, with deep knowledge building in the core thesis subject, in combination with training in relevant soft skills. Moreover, the candidates are encouraged to engage in interaction with collaborators outside their own field. While an in-depth understanding of the scientific-technological problems that a science & engineering doctor is confronted with is a prerequisite, many challenges that society and industry are facing nowadays can only be solved by teams composed of individuals from different disciplines. It is therefore our intention that the doctors emerging from the programme will have the deep knowledge of their specialty that allows them to confidently tackle difficult challenges, enhanced by a skill set that helps them to collaborate efficiently within interdisciplinary teams. This is highly appealing to employers and will enhance their job opportunities and career options, in industry and in academia. Candidates focusing on an industrial career will find additional support through numerous connections with industry, both in Luxembourg and abroad, as well as via strong links to the LIs. It is worth highlighting the expected abundance of job opportunities in the STEM field, which our doctoral candidates will benefit from.  |

# 3. Motivation

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| **3.1 Scientific and training need** |
| The economy of the country relies on highly talented people in diverse scientific fields. Compared to other European countries, Luxembourg has a relatively low number of doctorates in STEM. The new Doctoral School will thus help to overcome this weakness of the country.The Doctoral School will comprise supervisors and associated supervisors from the UL and from the LIs. All institutions aim at performing fundamental and applied research at the forefront of science and technology. Research relies to a large extent on the quality of the young researchers. The joint Doctoral School will help to attract some of the brightest students in STEM to Luxembourg and will thus help to establish Luxembourg as a firm player in these fields.For this purpose we will:* provide in-depth training and experience in internationally competitive cutting-edge research within the field of the thesis
* pool training resources common to the different scientific fields
* foster interdisciplinary research
* ensure high and consistent quality of doctoral education
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| **3.2 Opportunities for the UL and for Luxembourg** |
| Close cooperation between the members and programmes of the Doctoral School will deliver key synergies in terms of expertise and equipment. It will also facilitate cross-disciplinary collaboration and open new opportunities for stimulating research, where multiple players in Luxembourg act in concert, optimally utilising the local resources.The framework of the Doctoral School is also an important asset in facilitating participation in international training programmes and it broadens the visibility of Luxembourgish research. A Doctoral School with solid programmes will allow to further attract top researchers from all over the World. The participation of the FSTC in international training networks, such as Marie Curie –ITN or FNR-initiated collaborative programmes will also benefit from the existence of a Doctoral School. In addition, a Doctoral School in STEM will contribute to the competitiveness of Luxembourg and the region economy, by providing companies and institutions with top quality, well trained staff. This is already a reality with many recent PhD graduates being employed in Luxembourgish and European companies. |
| **3.3 Contribution to the overall strategic aims of the Faculty and the UL (4-year plan, Contrat d’établissement)** |
| The FTSC Doctoral School will contribute to the strategic aims of providing high quality education at the UL.Further, the focus areas of the Doctoral School are fully in-line with the scientific priorities of the “Contrat d’établissement pluriannuel” and with the privileged domains of collaboration of the UL with the LIs:* Computational Sciences
* Materials
* Sustainable development
* Information technologies, HPC
* Security, reliability and trust
* Systems biology, biomedicine

Further, the DS is also in line with the proposal of the FSTC for the 4YP, which follows the same domains, but includes also mathematics as a new initiative, to be seen as a backbone in particular to computational sciences.Creating a single DS for the FSTC contributes significantly to the overall strategic aims of the FSTC and the UL, in particular we note that a single FSTC DS:* will define a common understanding and definition of quality assurance principles translated into a common set of rules, reducing heterogeneity and fragmentation of the structures involved (FSTC, IC’s, Public Research Centers);
* by its unified, solid framework and procedures will encourage and facilitate collaboration with external institutions (such as research institutes in Luxembourg and abroad) in our programmes and guarantee quality standards in the selection of supervisors, one of the results being a stronger potential of attraction for high-quality candidates in STEM;
* will give the whole DS and its programmes a better visibility in Luxembourg and abroad, allowing common marketing measures with optimal use of resources;
* will give scientific and strategic freedom to doctoral programmes to adapt to the needs of new collaborative funding programmes (e.g. depending on acquired EU-Marie Curie or FNR-PRIDE funding; depending on institutional/national/international priorities);
* will promote and facilitate interdisciplinary research programmes (e.g. Computational Sciences);
* will allow an efficient management of the diversity of the research topics;
* will optimise administrative management(i.e. centralization of administrative know-how, back-up solutions during holidays) and simplify the designation of the degrees;
* will optimise professor resources in the management of the DS (e.g., participation at meetings, representation activities);
* will contribute to the cohesion of the FSTC, by strengthening the collaboration between the Faculty and the Interdisciplinary Centers.
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| **3.4 Link with UL Bachelor and Master Programmes** |
| Each FSTC Master programme is linked with at least one programme of the Doctoral School. (refer to Annex A – Doctoral School Programmes) |
| **3.5 International positioning (Greater Region and beyond)***(Comparison with other research institutes and doctoral education on this theme )* |
| The new Doctoral School will facilitate the co-supervision of theses with universities worldwide.Collaborations with the Universities of Saarbrücken, Metz-Nancy, Trier, Kaiserslautern, and others in the Greater Region may be developed on the level of the programmes.Altogether, the Doctoral School aims to help the UL and the LIs to increase their international visibility. |
| **3.6 Interdisciplinarity** |
| The Doctoral School comprises the two inter-disciplinary centres of the UL, and all FSTC RUs have successful examples of open-ended interdisciplinary research. By bringing together the diverse disciplines of the FSTC into a common structure, new multiple opportunities for inter-disciplinary activities arise. In addition, the planned organisation of seminars, lectures and the mandatory participation of PhD candidates in non-scientific courses will favour cross-discipline exchanges between candidates. |
| **3.7 Key features of the Doctoral School** *(Unique selling proposition: what makes the School attractive)* |
| The main features of a global Doctoral School in STEM will be: * to provide an internationally renowned School with leading scientists as supervisors,
* to offer topics at the cutting edge of international research,
* to span the full range from fundamental to applied, from disciplinary to interdisciplinary research,
* to give access to a broad range of experimental and theoretical tools,
* to provide a caring and encouraging environment for PhD candidates.

In addition, the option of creating an overall, larger Doctoral School for the FSTC will bring additional advantages, as it will:* allow common reflections on quality standards across the STEM disciplines, which will ensure the highest quality of training of our doctoral candidates,
* facilitate cross fertilization between disciplines and cross-disciplinary co-supervisions,
* ensure critical mass for impact on science, companies and society,
* facilitate the creation of STEM training programmes,
* allow efficient administration due to a common pool of support staff,
* provide contact opportunities for doctoral candidates in different units of the FSTC,
* ensure statistical significance in evaluations and feedback, needed for the improvement actions.
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# 4. Research environment

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| **4.1 Description of the research and training environment provided to the doctoral candidates, addressing infrastructure, community, network, and other benefits***(Available infrastructure listed in Appendix C)* |
| The DS provides research training and an administrative framework for research in STEM. Internationally recognized and connected group leaders ensure that candidates experience cutting-edge research that is competitive on a global scale and at the same time give them experience of multilingual and multicultural collaboration. Efforts are continuously devoted to maintain and strengthen contacts with industry and academic partners from Luxembourg and throughout the world, and doctoral candidates are encouraged to take advantage of this network for gaining experience beyond the local environment.Details are provided in the programme sections.  |

# 5. Doctoral Training

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| **5.1 Training objectives, guiding principles, and overall learning outcomes***(Expected learning outcomes at the doctoral level: see Framework document Section 2.2, and Appendix A)* |
| When being awarded a doctorate within the Doctoral School, a young scientist will have the experience and skills to continue largely independently in her or his research career, whether this is aimed at academia or industry. The training that will ensure this level of maturity has its foundation in the integration of each doctoral candidate within one of the internationally recognized participating research groups. In this role they will, throughout the regular three years duration of the doctoral education (with a maximum length of four years), experience a strong sense of responsibility. They will be expected to conduct world-class research, to disseminate the results in leading journals and at key conferences, and in other ways participate actively on the international research arena. They will also be strongly encouraged to develop and pursue their own ideas and, when appropriate, seek patent protection for ideas that may have commercial value. To support them in their endeavour they will have access to state-of-the-art infrastructure as well as a supporting and encouraging environment, foremost from the experts within the core group, but also across a broader spectrum throughout the Doctoral School and the overall support structure of the UL and LIs. By doing world-class research on a topic of strong current interest, with a considerable degree of independence, the candidates will learn to:* participate actively in the international scientific discussion, publicly through journal articles and via discussions at international meetings, as well as in closed fora with editors, referees and grant awarding institutions;
* stay up-to-date with the current developments in the field, both from a fundamental scientific point of view and in terms of the interest from industry and society, keeping in mind the prospects of applying the research results;
* design and carry out advanced research tasks, come up with creative solutions to challenging problems, analyse results, develop models and cope with failure—with revision of strategy when necessary—as well as the identification and harvesting of useful results;
* critically analyse their own but also other research projects methodologies and results;
* think critically and handle the constant influx of information in today’s connected world, allowing sensible judgements and just decisions even on complex issues.

The training will go beyond the realm of the particular scientific research project and the host group, encompassing also important transferrable skills such as: * written and oral communication of research results, with peers as well as with the larger society;
* teaching and supervising Bachelor/Master students;
* project planning and management, including risk analysis;
* an understanding of the ethical framework within which scientific research is conducted;
* basic principles related to intellectual property management.

These skills will be ensured largely by the experience of actually having to deal with the relevant issues in practice, and the candidates also follow a selection of courses on these topics offered at the UL/LIs. |
| **5.2 Total number of ECTS doctoral training required** *(Minimum required: 20 ECTS (1 ECTS = 25 hours work load for the doctoral candidate)* |
| A minimum of 20 ECTS is required for the whole duration of the PhD. This constitutes a global effort of 62.5 regular working days during the doctoral education.  |
| **5.3 Number of ECTS in each category:** 1. Scientific competences, thematic training related to research,  2. Inter/cross-disciplinary competences, common academic and scientific modules,  3. Transferable skills training and development(Initial offer of training modules to be listed in appendix G) |
| Category 1: at least 10 ECTSCategory 2: at least 3 ECTS (Including a compulsory course on good scientific practice, such as the one organised at University level.) Category 3: at least 3 ECTSProgrammes may have additional requirements, not contradictory with the DS rules. |
| **5.4 Procedure for the accreditation of new modules or external modules***(See section 4.7 of the Framework Document)* |
| The accreditation of modules within categories 1 and 2 will be handled by the Coordinating Committee of each programme whereas category 3 modules will be accredited by the Doctoral School's members' council (cf. Section 9.1). |
| **5.5 Additional measures introduced to achieve high-quality doctoral education**  |
| The measures to be considered to achieve high-quality doctoral education will follow the Quality Framework for Doctoral Training (QFDT) in annex E and the QAA Code of practice for quality assurance as indicated in Annex G to the UL Doctoral Education Framework-v.7. For more detailed information, pl. refer to section 12. Quality assurance, monitoring and reviewing.The DS and the programmes reserve the right to establish additional measures as required (e.g., to have additional informal CET meetings). |
| **5.6 Required resources for training***(Derived from the offer of modules)* |
| * Administrative staff (1 full time administrative manager (with a scientific profile) and at least 2 FTEs DS secretaries are required).
* Teaching and lecture rooms (equipped with computers, projectors, etc.)
* Budget for lectures, conferences/workshops, guest lectures, invited guests, travels, competitive support for candidate-initiated research projects, external advisors and CET and jury members, etc.
* Gathering rooms for candidates (at least one per programme)
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# 6. Supervision and mentoring

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| **6.1 Supervision concept and minimal requirements***(See Section 5.2 of the Framework Document)* |
| Supervision will follow the rules and regulations of the University of Luxem­bourg, involving a *Comité d'encadrement de thèse (CET)*, which will meet on a regular schedule. At the beginning of each doctoral candidate's PhD studies and further on, the PhD candidate together with the supervisor will develop an individual training plan (Doctoral Education Agreement); the training plan consists of the type of training (formal, e.g. courses, and informal, e.g., visits to research partners) that appear most appropriate to the candidate's needs. Thus the re­spective personal training scheme will profit from the variety of offers in the programmes of the Doctoral School and provide the candidates with comple­mentary insights into disciplinary and interdisciplinary skills. Additional to the training plan and the advice provided with regard to the PhD project, the CET will also provide holistic guidance for the candidate’s future perspectives, if requested.When appropriate, a doctoral candidate can have a second advisor next to the main supervisor who takes part in ad­vising the candidate on a regular basis. The second advisor can be a post-doctoral researcher. The responsible person for the candidate is clearly defined as the main supervisor. All supervisors of the Doctoral School need to be in possession of an ADR. The requirements for an ADR are formalized in the UL ROI statutes under which the Doctoral School operates.The CET consists of at least the advisor, one further member from the Doctoral School but from a different research group (at least one of these two members has to be at the UL as main affiliation), and one who can be external to the Doctoral School, provided sufficient standing. Once a year a prize to the best Ph.D. thesis/defence will be awarded. To this end, the external referees are asked to state if a thesis counts among the top best 10%.Programmes can install additional measures. |
| **6.2 Mentoring concept (if applicable)***(See Section 5.5 of the Framework Document)* |
| If desired, a mentor can be defined for each doctoral candidate. The mentor should be someone more advanced in the professional career to whom the doctoral candidate can turn for additional help or advice, or consult in case of a disagreement with the supervision team. Ideally the mentor should have some knowledge of the field of the candidate’s research project yet be external to the supervisor team. If the mentor identifies problems in the doctoral supervision s/he should step in to try to resolve the problems or, if this is not possible, s/he should engage the FSTC ombudsperson. |

# 7. Admission:

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| **7.1 Recruitment process and marketing concepts** *(Including measures to ensure equality, see also Section 4.4. of the Framework Document)* |
| The DS will follow the UL recruitment regulations and the specific rules on recruitment and admission into doctoral training (cf. QFDT document). Additional details may be provided on the programme level. |
| **7.2 Specific application and admission requirements and procedures***(Those that are in addition to the UL requirements, see also Section 4.4 of the Framework Document)* |
| Specified on the programme level if needed.  |
| **7.3 Procedures for the accreditation of prior experiential and/or prior certificated learning** |
| Specified on the programme level if needed. |
| **7.4 Core elements of the Doctoral Education Agreement (DEA)***(A Doctoral Education Agreement has to be defined and signed within 2 months of the inscription as doctoral candidate. See Section 4.5 and Appendix E of the Framework Document)* |
| The DEA of the DS (CODEX) will be inspired by the existing UL template and the Marie Curie Career Development Plan. This CODEX will refer to the best practices on research and training programmes for PhD candidates. The DEA will refer to the CODEX in general and identify the particularities by candidate. The following items will be taken into consideration:* obligations and rights of the supervisor
* obligations and rights of the PhD candidate
* research project
* training programme, including scientific competences related to the research topic and transferable skills
* teaching activities
* involvement in the Doctoral School Programme
* dissemination
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# 8. Language(s)

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| **8.1 Language(s) used in training** |
| The language of all seminars and courses offered at the University of Luxembourg in the framework of the Doctoral School is English. Some training modules (like language courses, or like summer schools abroad) can use a different teaching language. Individual supervision and mentoring will be done in the language that is most suitable for the candidates and the supervisors. |
| **8.2 Language competences required** |
| Doctoral candidates are required to have a good knowledge of English. No language certificates will be required, but are recommended.  |
| **8.3 Language support offered** |
| The language support of the University of Luxembourg will be available to the doctoral candidates. Apart from this, the training programme includes courses in scientific English writing. |

# 9. Organisational structure and governance

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| **9.1 Organisational structure and governance issues***(E.g. elections, admission decisions processes, see also Section 4.2 and Appendix I of the Framework Document)* |
| In accordance with the UL Doctoral Education Framework, the Doctoral School (DS) in Science and Engineering is a collegiate structure, consisting of:* Head of Doctoral School
* Deputy Head
* Members' Council (MC)
* Programme Coordinators
* Programme Committees
* Doctoral Candidate Council
* Scientific Advisory Board
* Doctoral candidates
* Supervisors
* Ombudsperson
* DS Manager
* DS Administrative Assistants

**The supervisors of the Doctoral School can change the statutes by a vote in which at least 50% of all supervisors vote in favour.** **Head of Doctoral School**The head of the Doctoral School is nominated by the Dean, based on an elec­tion by the Members' Council. The UL president appoints the Head of the Doctoral School for 5 years with a possible specification of an alternative duration.Tasks:* Official representative of the DS - maintains and can establish exterior relations, (e.g. cooperations) and helps in the preparation of collaboration agreements with third parties, together with the respective programme coordinators.
* Strategic management of the Doctoral School in conjunction with the Members’ Council and the Scientific Advisory Council
* Offer his/her services to support the academic admission of the doctoral candidate to the UL.
* Responsible with the MC for the distribution of the Doctoral School Budget.
* Member of the Doctoral Education Committee [definition of DEC cf. UL – Doctoral Education Framework (v.7), section 3.3].
* Line manager of DS manager and administrative assistants.

**Members' Council**The Members' Council consists of the Head of the Doctoral School, the programme coordinators, and additional two members (responsible for the Quality Assurance and Funding & Communication). In addition the Dean, two Doctoral Candidate Representatives and the DS Manager will participate with a consultative role (non-voting). The two additional members are elected by the other members of the Members' Council for a term of 5 years. Re-election is possible. Furthermore, if relevant, the Luxembourg Institutes (LI’s) can have one voting representative if none are already in the MC. The MC meets at least once per Semester.The MC elects among its members from the academic staff a Deputy Head who can replace the Head of the DS when necessary.Tasks:* Decide, after recommendation by the respective Programme Committee, about admission of supervisors. In case of severe negligence or misconduct a supervisor may be excluded by the MC from the DS, based on recommendation from the Programme Committee.
* Develop and maintain a general research and training strategy for the Doctoral School.
* Adopt, modify and abolish programmes after consultation with programme committees, RUs, ICs.
* Decide and plan regular evaluations of the Doctoral School and, together with the BED (Bureau des études doctorales / office of doctoral studies), of the progress of its doctoral candidates, report this to the Doctoral Education Committee, the RUs and ICs involved, and to the FSTC.
* Develop measures for quality assurance together with the FSTC and the Programme Committees, RUs and ICs involved, as well as the Doctoral Education Committee.
* Decides on strategic collaborations with partner institutions, whether for research or for training.
* Elaborate, together with the Manager, the yearly budget proposal for the Doctoral School.
* Seeks for funding opportunities on the DS level
* Approves the communication strategy of the DS (e.g. dissemination of important results/achievements).

Decisions within the MC will be made by majority voting. In case of equal votes the head of DS has a casting vote. At least 50% of the members (excluding non-voting members) of MC must participate in the voting. Electronic voting will be accepted.**Programme Committees and Programme Coordinator**Each programme has a Programme Committee (PC), consisting of the Programme Coordinator and at least one additional elected member. The programmes will develop their own statutes, not contradictory to the main DS statutes. The Programme Coordinator and the additional member(s) are elected for a maximum of 5 years by the supervisors involved in the programme. Re-election is possible. Regular PC members may be replaced during these 5 years.**Tasks of the Programme Coordinator:*** Day to day management of the Programme with support of the DS Manager and the Administrative Assistants.
* Preparation of collaboration agreements with the support of the DS manager and the administrative assistants.
* Search for and apply for funding opportunities on the DP level in coordination with the Manager and the Research Facilitators.
* Responsible for the description of the Doctoral Research Programme and its maintenance in close collaboration with the PC, as well as with the FSTC and the RUs and ICs involved.
* Member of the Doctoral Education Committee.
* Responsible for the overall management of the programme budget. Recommended delegation of daily budget follow-up to the Manager. Budget details to be determined at programme level (thresholds for approval of expenditures).
* Recommends the acceptance /exclusion of supervisors of the DS to the MC.

**Tasks of the Programme Committees:*** Development of a strategy for the Programme.
* Propose the research training modules offered by the Programme and the allocation of ECTS.
* On request by a doctoral candidate and his/her supervisor(s), can attribute ECTS points for a course/module attended by the candidate which is not (yet) on offer in any of the research programmes of the Doctoral School, e.g. those offered at other institutions, if it falls into the theme of the programme and satisfies the required quality standards.
* Deal with complaints and problems, where required together with the Members’ Council, the relevant UL committees, in collaboration with the FSTC Ombudsperson, or refer these cases to the Doctoral Education Committee.
* Monitors the general scientific quality of the programme and the individual progress of the DCs based on the CET reports.
* Elaborate the yearly programme budget proposal and advise the programme co-ordinator, who is responsible for the programme’s budget, on the allocation of funds.
* Organise calls for stipends/travel grants, bench fees etc.
* Search for and explore funding opportunities for the Programme, communication with and reporting to funding bodies.
* Decide on the admission and withdrawal of doctoral candidates from the DS (not from the University) and reports to the Members Council.
* Ensure compliance to the UL Doctoral Education Framework and the rules and regulations governing doctoral education at the UL.
* Ensure compliance to UL, national and international Codes of Practice and guidelines.
* In case of doubt it can advise on the composition of the CET and the jury for the PhD defence.

**Doctoral Candidate Council and Doctoral Candidate Representative(s)**The Doctoral Candidates (DCs) develop the statutes of the **Doctoral Candidate Council** during the starting phase of the DS. The Statutes have to be approved by the MC.In each programme, the doctoral candidates elect a Doctoral Candidate Programme Representative for a term of one year. Re-election is possible.The Doctoral Candidate Council consists of the Doctoral Candidate Programme Representatives of each programme and additional members elected by all Doctoral Candidates enrolled in the DS. The term is one year. Re-election is possible. The number of elected members will be specified in the statutes of the Doctoral Candidate Council.**Tasks of the Doctoral Candidate Council:*** Represent the DCs in the DS.
* Elect the **Doctoral Candidate Representative(s)** in the Members’ Council for a term of one year. The members can be re-elected.
* Advise the Members' Council (e.g. via the Doctoral Candidate Representative(s))
* Organise social activities for doctoral candidates.
* The Doctoral Candidate Programme Representatives will advise the Programme Committees in their respective discipline.

**Tasks of the Doctoral Candidate Representative(s) in the MC:*** Represent the DCs in the MC.
* Advise the MC.

**Scientific Advisory Board**The Scientific Advisory Board shall consist of internationally recognised experts in the areas of the DS. Upon nomination by the MC, the members of the Scientific Advisory Board are appointed by the rectorate for a mandate of 5 years, which can be extended an unlimited number of times. Each programme can propose one member of the advisory board to the MC. The majority of members should be from academia but representatives from industry are also desirable. The key requirements for membership on this board are:* Scientific/technological excellence;
* Experience with internationally recognized doctoral training programs;
* Activity in a research area within STEM.

**Tasks:*** Follow-up on the development of the DS, e.g. through the annual reports. Send a short note of approval with possibility of recommendations. These notes are to be provided by each member individually.
* Meet physically at least once every three years. The first meeting should take place during the starting phase of the Doctoral School. Meet one time per year using virtual options.
* Advise the Members' Council and the Programme Committees, individually or collectively, on the training programmes and the structures and make recommendations to improve the quality of the doctoral education. This should be done with the support of a yearly report.

**Doctoral Candidates**Doctoral candidates, besides their research work, should participate in the training programmes and contribute to the activities and daily life of the school**.**All doctoral candidates will, as part of their training, contribute to the teaching in the master and bachelor programmes of FSTC. In most cases they will act as assistants in TD and “Travaux Pratiques” (TP) courses.**Supervisors**Supervisors can be professors, associate professors and other researchers having the right to supervise doctoral candidates at the UL and whose research fits to at least one of the Programmes. Membership in more than one Programme or DS is possible. The DS can also have associated supervisors, who are Professors, Associate Professors and other researchers who have the right to supervise doctoral candidates at other institutions than the UL and whose research is in line with the framework of the Doctoral School, its Programmes or Themes.**Tasks:** * Supervise or be a CET member of Doctoral Candidates enrolled in a Programme of the Doctoral School.
* Supervisors define suitable doctoral projects, ensure a fostering and caring environment for the doctoral candidate, take time to discuss with them, advise them, respect their ideas, help them build their network, read and comment on their manuscript drafts and theses in a timely fashion.
* All supervisors contribute to the activities of the DS and the respective programmes, adhere to its statutes, contribute to the DS’s functioning, ensure quality of supervision, and – in principle – their DCs are part of the DS.
* the supervisors of each programme decide on the respective Programme statutes with its annexes.
* Monitor general progress of doctoral candidates in close contact with CET members.

**Ombudsperson**The tasks of the ombudsperson include:* Facilitate the dialogue between conflicting parties;
* Contact person in case of unresolved problems and conflicts within the DS, e.g., between a PhD candidate and a supervisor;
* Neutral party to support the solution of problems and mediator
* Responsible for resolving disputes where possible;
* Conduct an investigation in case of serious conflicts;
* Work according to the code of ethics and practices of the international Ombudsman Association

(pl. refer to http://www.ombudsmanassociation.org/about-the-role-of-an-ombudsman.php)**Management team**The DS will be managed by a DS manager and administrative assistants.**Doctoral School Manager (1 FTE)**The Doctoral School manager will be recruited on a full time position. The person will have a STEM background and at least a Ph.D. The ideal candidate should have project management and/or administrative experience at a high level.Tasks:Day to day management of the school including but non-exhaustively:* Assist the Head and Members' Council and Programme Co-ordinators and Committees in administrative and reporting matters of the Doctoral School.
* Deal with all routine cases and administrative procedures of admission, progress reports, graduation etc. on behalf of the Head
* Organisation of doctoral training modules
* Overview of supervisors
* Evaluation and quality assurance activities
* Apply for funding opportunities on the DS level in coordination with the programme coordinators and the Research Facilitators
* Budget monitoring and preparation
* Communication, including annual report
* Organise and follow-up an Alumni programme together with the quality and procedures officer.

A more detailed description of the DS Manager is presented in the Annex F.**Administrative Assistants (2 FTE)**The administrative assistants assist the Head, the Members' Council and the programme co-ordinators and committees in administrative matters of the Doctoral School. They support the Doctoral School manager. Tasks will include for example:1. Follow up on DS Candidates (reports, ECTS, liaise with BED, etc.)

Follow-up and organisation of the trainings (training modules, travel assistance, internal communication)Support to the General Organisation of the DS (lists, budget, communication, meetings) |
| **9.2 Members and their research areas***(CV’s in appendix G)* |
| See the programme descriptions. |
| **9.3 Members Council Members***(initially these are the founding members)* |
| As soon as the DS runs, elections will be held. The starting MC is composed of:Pascal BouvrySerge HaanSusanne SiebentrittGabor WieseAndreas Zilian |
| **9.4 Administrative, Website support and Training Coordination***(see Appendix I of the Framework Document)* |
| See section 9.1. |

# 10. Partnerships and cooperations

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| **10.1 Research-related partnerships in the context of the DS***(With whom? Does an agreement or convention already exist? See also Section 5.4 of the Framework Document)* |
| The new Doctoral School will inherit the existing partnerships of the founding Doctoral Schools. For details, see the programme descriptions. |
| **10.2 Training-related partnerships***(With whom? Does an agreement or convention already exist?)* |
| On the programme level. |
| **10.3 Mobility possibilities and requirements (exchange and research visits)** |
| On the programme level. |

# 11. Degree

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| **11.1 Diploma Supplement elements***(see outline in Appendix F of the Framework Document)* |
| The Diploma Supplement will be developed in the starting period of the Doctoral School; it will be based on the diploma supplements of the current DS in Computer Science and Computer Engineering and in Systems and Molecular Biomedicine. |
| **11.2 Joint supervision (co-tutelle) possibilities** |
| Joint supervision under co-tutelle contracts with foreign institutions are supported by the Doctoral School in a flexible way.The ECTS requirements of the Doctoral School can be reduced by the PC for doctoral candidates who are under a co-tutelle contract and only spend part of their time at the UL. |
| **11.3 European doctorate possibility***(see description in Appendix D of the Framework Document)* |
| Doctoral candidates and their supervisors are strongly encouraged to verify the possibility to obtain a European Doctorate. Such an ambition should be communicated at an early stage, so that the requirements can be met.The Confederation of the EU Rectors' Conference (now EUA) proposed four criteria that underpin the European Doctorate:* “The PhD thesis defence will be accorded if at least two professors from two higher education institutions of two European countries, other than the one where the thesis is defended, have given their review of the manuscript;
* At least one member of the jury should come from a higher education institution in another European country, other than the one, where the thesis is defended;
* A part of the defence must take place in one of the official languages of the EU, other than the one(s) of the country, where the thesis is defended;
* The thesis must partly have been prepared as a result of a research period of at least one trimester spent in another European Country.”

For a detailed procedure refer to Annex D, of the Doctoral Education Framework: V7, 24/01/2012. |

# 12. Quality assurance, monitoring and reviewing procedures

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| **12.1 Performance criteria for the evaluation of the Doctoral School** |
| A non-exclusive list of performance criteria comprises:* The majority of PhD candidates and of the PhDs leaving the Doctoral School expresses that they are fully satisfied with their research and training conditions (cf. 12.3).
* A clear majority of the candidates joining the Doctoral School successfully complete their doctoral studies
* The average time to completion of PhD theses is well below four years.
* The quality of the majority of PhD theses is adequate for the discipline. Specific criteria for the assessment of quality should be identified at programme level. One possible way of assessment would be to survey the members of the CET on this regard.
* Publications in scientific journals are highly desirable in programmes where publications at doctoral level are customary. This is part of the training of young researchers. The details are regulated in the programme descriptions.
* Approved patents generated within the scope of Doctoral School research are considered as highly positive but a quantitative criterion is not formulated, since the primary aim of the doctoral education should be academic research, where patentability is a desirable but highly unpredictable secondary outcome.
* The majority of DS alumni find jobs within 6 months after their defence and express satisfaction with their jobs considering their qualification and with their careers during the first few years after their defence. This evaluation will be possible provided a functioning alumni programme is put in place. Evaluation tools, based on the current “leavers’ survey” will then be prepared and applied.
 |
| **12.2 Quality assurance measures** *Proposed measures with respect to: (see guidelines in Appendix G of the Framework Document)** *applications, applicants and application processes,*
* *individual training programmes and research plans (quality, novelty, originality, innovative potential),*
* *training modules,*
* *supervision and mentoring,*
* *research work, PhD theses, progress,*
* *research environment,*
* *criteria for achieving the doctorate, for suspension*
 |
| Quality assurance measures for the DS will follow the recommendations of the Quality Framework for Doctoral Training in annex.The Members' Council of the DS is responsible for quality assurance. Measures targeting specific aspects are the following.*Applications, applicants and application processes*:* The DS assists in the candidate recruitment process, with advice and advertising.

*Individual training programmes, research plans and research work** The FSTC provides workshops for PhD supervisors, giving advice on how to formulate appropriate individual training plans, how to efficiently monitor research progress, how to handle unexpected problems and many other aspects of great importance for a good doctoral education environment. All Doctoral School supervisors are encouraged to attend such a workshop and inexperienced supervisors are expected to do so.
* The individual research and training plan will be designed to provide excellent training on multiple levels, including transferrable skills, and it should have ambitious scientific goals, aiming at high-quality and original research, where novel results that will find broad interest can be expected.

*Training modules** All training modules will be evaluated by the participating doctoral candidates. If the results indicate that the quality of a module may be unsatisfactory a review will be called for, which should lead either to an adjustment of the module to address the problems or a removal of the module from the training programme.

*Supervision and mentoring** The formal procedure for monitoring the progress of a PhD thesis at the UL is designed such that quality problems in supervision will be identified at an early stage. The CET committee, which can contain also professors external to the UL, is in charge of monitoring each candidate’s progress throughout the duration of the doctoral research. Its members are encouraged to alert the Members' Council of the DS if they see signs of inadequate supervision.
* Cf. to section 6.2., a mentor can be defined for each doctoral candidate. The mentor, who should have some scientific knowledge in the field of the DC, will be available for the DC in case s/he needs advice, e.g., on difficulties in implementing the doctoral project. In this regard, the mentor, as experienced researcher, may be able as well to identify issues that could question the quality of the project and alert early enough the DC and/or the supervisor to the need of additional support to the DC.

*Preparation of PhD thesis** Younger candidates are encouraged to attend defences of older colleagues and read theses in fields related to their own, both from UL/LIs and from other institutions, throughout their doctoral studies period. This experience, together with guidance from the supervisor and knowledge acquired via appropriate courses offered within the Doctoral School framework, will ensure that the candidate understands the expectations connected to the doctoral title and is able to deliver a thesis that fulfils all criteria.

*Research environment** The CET of each candidate are encouraged to consider also the research environment in their regular reviews. Should inadequacies be identified, whether in terms of inadequate or insufficient equipment, training or in terms of the social environment, the committee shall alert the Doctoral School Members' Council and adequate measures will be taken to address the problem. Candidates who are unsatisfied with their situation can also contact the FSTC Ombudsperson, who will bring the concerns to the attention of the Members' Council.
 |
| **12.3 Evaluation processes planned***(E.g. external evaluator or scientific advisory board)* |
| The performance of the Doctoral School will be evaluated regularly, based on the tangible output, exit polls and other assessment measures. While the exact evaluation measures may vary between programmes, recommended procedures are for instance:* regular surveys of participants of the Doctoral School both among doctoral candidates, their advisers and other involved faculty and senior staff, to monitor the level of satisfaction with the school as a whole and of each programme, and identify needs for adjustments and/or improvement of certain components;
* exit polls on all candidates leaving the Doctoral School, for successful PhDs as well as for candidates who abort their doctoral studies. These polls will be designed to identify highlights and problems of the Doctoral School, but also to collect self-assessments from all alumni regarding their scientific as well as transferrable skills. This will be carried out by the DS or the DP heads.;
* extended evaluations about every five years where all alumni are contacted, provided that the UL realizes a structure for maintaining alumni contacts. An external company may be hired for this purpose.

The establishment of an external scientific advisory board is planned during the first two years of the Doctoral School. (pl. refer to section 9.1) The external advisory board will review the coherence and quality of the training program and give strategic advice on future developments and external co-operations. |
| **12.4 Adherence to the European Charter for Researchers***(See Section 5.1 of the Framework Document)* |
| The Doctoral School is committed to support the UL implementation of “The Human Resource Strategy for Researchers” (HRS4R). |

# 13. Required resources

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| --- |
| **13.1 Administrative, website and training coordination support***(An estimated 0.5 FTE of support is required for a school of up to 80 doctoral candidates)* |
| 2 FTEs for administrative support, and 1 FTE for the DS manager2 student assistants (10h/week) |
| **13.2 Operational costs** *(E.g.**External members, invited experts, marketing, advisory committee and jury members, fees and travel costs related to external training)*  |
| Being prepared. |
| **13.3 Training costs (trainings organised by the DS or UL)***(Separated into ECTS provided by UL staff and by others)**(Training in transferable skills offered for more than one Doctoral School can be (co)financed by the UL or other funding agencies.)* |
| Being prepared. |
| **13.4 Infrastructure costs specific for the School***(E.g. space requirements above those already available)* |
| Meeting rooms for the Doctoral School in Belval and/or other campi, as appropriate.Coffee room (including tables/seats/coffee machine) for the doctoral school. |
| **13.5 Investment costs related to infrastructure or equipment** |
| **Durable equipment**Specific major equipment for the Doctoral programmes should be financed by other budgets. |
| **13.6 Further resources required***(E.g.**Extended stays abroad for training purposes, grants for doctoral candidates)* |
| It is foreseen to fund longer stays abroad for selected doctoral candidates: these expenditures will be funded by other budgets.  |

**Summary of the FSTC DS costs:**

*(Using UL budget categories and specified for the starting period (3 years) and when established. Details can be provided in separate excel table. This table does NOT include salary for permanent staff)*

|  |  |  |  |
| --- | --- | --- | --- |
|  | **2016** | **2017** | **2018** |
| ***Number of doctoral candidates*** | 300 | 350 | 350 |
| **A: Personnel** | 6000 | 6000 | 6000 |
| **B: Third party (experts, speakers)** | 75000 | 85000 | 85000 |
| **C: Durable equipment** | 25000 | 25000 | 25000 |
| **D: Trips, travels and stays** | 135000 | 145000 | 145000 |
| **E: Documentation** | 10000 | 10000 | 10000 |
| **F: Other costs**  | 49000 | 59000 | 59000 |
| **G: Operating costs** | 50000 | 50000 | 50000 |
| **Total** | **350000** | **385000** | **385000** |

|  |  |
| --- | --- |
|  | **Running costs** |
| ***Number of doctoral candidates*** | 300 |
| **A: Personnel** | 6000 |
| **B: Third party (experts, speakers)** | 75000 |
| **C: Durable equipment** | 25000 |
| **D: Trips, travels and stays** | 135000 |
| **E: Documentation** | 10000 |
| **F: Other costs**  | 49000 |
| **G: Operating costs** | 50000 |
| **Total** | **350000** |

**Justification of the budget:**

This budget table reflects the cost which will appear in the FSTC’s annual “budget request” to the Rectorate. For 2016, this is 350.000 €. **This sum is already included (and approved) in the FSTC’s budget request for 2016.** For 2017 and 2018, an increase is foreseen. It is also planned to increase third party funding (scholarships etc.).

This is the budget for the running of the school, including the programmes.

The detailed distribution of the global budget will be negotiated in the Members Council meeting.

* **Personnel** costs for permanent positions (2 secretaries, 1 manager) are not part of the annual FSTC budget request. **1.5 FTE secretaries are already working at the FSTC and calculated in the budget.** **Additional salary costs will thus be required for 0.5 FTE secretary, and 1 FTE manager.**The only personnel costs mentioned here are for student’s assistants. This amount reflects 12 months (500 € per month) of such positions which can be split over 1-2 postholders: *6000 €*
* **Third party (experts, speakers**): the advantage of the single doctoral school is that a lot of these seminars can be offered to all PhDs, instead of each programme organising its own seminar. On the basis of 50 seminars/lectures and a unit cost of 1000 € (covering honorarium, travel, accommodation if applicable): 50.000 €
In addition, 10 block courses (unit cost 2500€): 25.000 €
*TOTAL third parties: 75.000 €*
* **Durable equipment:** Computer and other hardware will be covered by the SIU (for standard equipment) and is not mentioned here; in exceptional cases, more expensive material is required; in addition, these costs will cover replacement of lab equipment (e.g. microscopy lenses, additional software): 25.000 €
Any specific /substantial equipment (e.g. HPC) will be covered separately (see also the programme budget).
* **Trips, travels, stays:** Competitive travel grants for PhD students will be given to about 20-25% of all PhDs in the Doctoral School: 2000€ each for 60 PhDs: 120.000€. Additional 15.000 € p.a. are foreseen for travel of the heads of school/programme/manager.
*TOTAL: 135.000€*
(NB: additional travel money will be made available via other sources, internal or external)
* **Documentation**: subscriptions, incl. e-journals, research monographs, and other documentation: *10.000 €*
* **Other costs**: Additional interactive and networking measures (PhD days: 2x8000€/ Away days 2x10.000€/ monthly science meetings, e.g. “Pizza club” 5000€/ competitive bench fee calls 8000€): *49.000 €*
* **Operating costs**: Mainly costs for PhD defenses; these should be co-financed by other sources (e.g. lab budgets), according to the exact number of defenses to be be held; on the basis of 50 PhD defenses per year, a max. contribution of 800 € by the DS budget: 40.000 €
Divers operational costs and contingencies: 10.000 €
*TOTAL Operation costs: 50.000 €*

# List of Annexes:

1. **DS programmes**

**Appendix**: Training Modules, CVs (needed?)

1. **Statutes of the Doctoral School**
2. **Doctoral Education Agreement (template will be provided by UL)**
3. **Diploma Supplement (template will be provided by UL)**
4. **Quality Insurance Charter**
5. **Doctoral School Manager – Description of tasks**
6. **Doctoral School Administrative Assistants – Description of tasks**

# Annex A: DS programmes

**A.1. Doctoral programme in Systems and Molecular Biomedicine (DS-Biomed)**

**A.2. Doctoral programme in Computer Science and Engineering**

**A.3. Doctoral programme in Computational Sciences**

**A.4. Doctoral programme in Mathematics and Applications**

**A.5. Doctoral programme in Physics & Materials Science**

**A.6. Doctoral programme in Civil Engineering**

**A.7. Doctoral programme in Mechanical and Communications Engineering**

**A.8. Doctoral programme in Geodesy and Geophysics**

**Module types:**

1. Programme specific modules: Scientific competences, training related to research topic of the doctoral candidate, or the research programme of the Doctoral School.
2. Inter/cross-disciplinary competences, joint scientific modules, geared to groups of disciplines.
3. Common foundation geared to all disciplines: Transferable skills training and development.

|  |
| --- |
| **Title of Module**Type of Module: *(1,2 or 3)*Status: YEAR |
| Module Number (Code for ACME/admin) | *Do not fill in, unless the course is an existing MA level course.* |
| Duration (weekly, bi-weekly, days or hours) |  |
| Course type (Obligatory/ not obligatory) |  |
| Number of ECTS |  |
| Frequency of Module |  |
| Recommended Year  |  |
| Requirements for participating  |  |
| Lecturer |  |
| Teaching language |  |
| Workload (self-study, contact hours, group work) |  |
| Requirement for award of credits |  |
| Special features (event, guest lectures, e-learning, conference, etc.) | -- |
| Required literature |
| Qualification objectives | *
 |
| Content of module *(short description of the content of teaching and learning)* |  |

**List of Members**

Prof. Dr XXX,

Prof. Dr. XXX,

LIST – list of CVs from Lis only to be included when the DTUs are approved

link to LIs – rules

rules for ADRs

(to be filled in?)

# Annex B: Statutes of the Doctoral School

# Annex C: Doctoral Education Agreement.

The Doctoral Education Agreement contains:

* research theme, aims and objectives
* research, training and career plans
* supervisor and CET
* frequency of supervision
* reporting, presentation and publication
* teaching tasks
* distribution of tasks
* involvement in Doctoral School
* progress and evaluation criteria
* rights and duties of the doctoral candidate

# Annex D: Diploma Supplement

*(See Appendix F of the Framework Document for an example)*

Based on current DS supplements, to be adapted after approval of the DSSE.

# Annex E: Quality Assurance Charter

The specific DSSE rules and procedures on quality assurance, have already been described under section 12. In addition the quality assurance in the DSSE will respect the general rules from the QAA Code of practice for quality assurance as indicated in Annex G to the Framework document and in the Quality Framework for Doctoral Training as proposed by the rectorate for the PRIDE Call, and hereinafter presented.

**UL Implementation of the Quality Framework for Doctoral Training**

The University of Luxembourg’s (UL) quality requirements on doctoral education are specified at three levels: 1. Luxembourg’s University Law and Grand-ducal Regulation (RGD); 2. the UL’s internal regulations (ROI) and Doctoral Education Framework (DEF); and 3. the UL Governing Board approved Doctoral School Application documents and statutes. As shown below, implementation of the FNR’s Quality Framework for Doctoral Training is nearly completed; what remains will be finalised before the start of the DTU’s.

**The University’s Doctoral Education: introduction**

The Law, RGD and ROI specify the modes of registration, admission, and assessment (intermediate and final) of each UL PhD candidate. The 2012 DEF introduced the concept of structured doctoral education through Doctoral Schools.

Doctoral education comprises training through research, training for research, and a supportive environment, characterized by clarity, quality, and community. The core component is research (ROI: 80%). The required training component includes specialist and transferable skills. Teaching is encouraged, but limited to 90 hrs/year. PhD candidates have a clear status and position, are recognized as early stages researchers, receive a personalised training programme, and are supervised and assessed based on a transparent contractual framework.

A Doctoral School (DS) is a research and training environment providing doctoral education and a community of (40+) PhD candidates, governed by the supervisors involved, and lead by an elected Head and Council. Multiple organizational units (UL internal or external) can be involved. The DS strategy and thematic focus are defined in close collaboration with the involved units. A DS has several doctoral programmes that provide focus and the flexibility to adapt to changes, emerging topics and calls such as PRIDE. A program can “run across” several DS. A Doctoral Training Unit (DTU) can strengthen an existing or lay the foundation for a new doctoral programme (or DS).

**Doctoral research environment and management**

DSs offer PhD candidates a lively community and a rich, personalised research and training environment designed to further excellence in research by encouraging frequent intellectual interaction within and outside the UL, developing the competences required for high quality research, and prepare for future careers. Mobility is encouraged.

The DS specifies and manages the doctoral education of its PhD candidates. The UL ensures adherence to the regulations concerning registration, admission, progress reports, final assessment and degree deference (Law, RGD & ROI). Regular meetings of Heads of DS and of the Doctoral Education Committee (DS Heads, Deans and UL management) ensure continuous reflection on structure, management and quality of the UL doctoral education, as well as a common identity and coherence between DSs, respecting the specifics of individual fields. The UL review by the External Evaluation Committee includes doctoral education. The first DS-specific evaluations are planned in 2016.

**Recruitment and admission into doctoral education**

PhD candidates recruited by the UL receive an employment contract (“chercheur en formation doctorale”), hence follow UL standard recruitment procedures. All positions are advertised through the Euraxess-portal and other relevant media and networks. The UL work plan to implement fair and transparent recruitment and appraisal procedures for all researchers received the HR Excellence in Research logo in 2013.

As in other universities, admission is subject to legal criteria (Law & RGD), the availability and interest of at least one thematically fitting supervisor, the candidate’s academic ability and research potential, the suitability and feasibility (incl. financial) of the intended research for a PhD project. The UL verifies the legal requirements. DS admission is initiated by the supervisor, but approved by the DS (as specified in its Statute). Once accepted, all UL PhD candidates, whether employed by the UL or otherwise, register as students each semester.

PhD candidates are welcomed in monthly UL induction days and in DS specific events. Upon admission, PhD candidates are informed about their rights and duties, and those of their supervisor(s).

**Supervision**

All supervisors have to have a doctoral degree. The criteria and process to obtain supervision rights are documented, with specific rules for those external to the UL (RGD, ROI); the Faculty decides on awarding full or limited supervision rights based on scientific merit, supervisory experience, and fit with the Faculty’s strategy. Supervision trainings are offered for supervisors and for researchers without supervision rights as part of their career development.

Each PhD candidate has a main supervisor at the UL: a joint degree (cotutelle) involves a second supervisor from another university. The supervisor is member of the thesis supervisory committee (CET) nominated by the Dean within two months after admission (RGD & ROI). At the same time, the newly introduced Doctoral Education Agreement (DEA) between candidate, university and supervisor(s) is signed, ensuring transparency about rights, duties and expectations of all involved. The Litigation Committee deals with situations of conflict. The DEA includes the elements of the FNR’s supervision agreement proposal and is tailored to the training and research needs of the PhD candidate. The CET guides the PhD candidate throughout the process, and is responsible for formal progress evaluation and reporting (at least once a year), for reviewing the DEA, and for releasing the dissertation for the thesis defence.

**Skill training and professional development**

PhD candidates benefit from high quality supervision and training offer. The role of the supervisor(s) remains crucial; the DS contributes with a community of peers, offering a wider range of experiences. The UL offers transferable skills trainings, including scientific integrity, teacher training and entrepreneurship, and provides counselling for professional development and career orientation (Campus Carrières). The DS provide a field-specific training offer. Chapter 2.2 describes DTU specific trainings. Participation in external events, e.g. summer schools and conferences, is strongly supported for training as well as networking purposes. A total of 500 hours (20 ECTS points) of training is required, of which 250 for transferable skills. A diploma supplement lists the absolved trainings.

**Dissemination**

Dissemination of results in scientific journals and conferences is required: to a non-scientific public recommended. Relevant training is offered. Standards concerning authorship and citation are made available. The UL has developed a valorisation and IPR guide, and employs a specialist to support researchers in this matter. Written agreements with partners include publication and IPR issues and are drawn up in an early stage. All dissertations are published through the UL’s OrbiLU Open Access server. Temporary or partial embargoes are possible.

**Good practice in research**

The UL has put in place a Policy on Ethics in Research. The Ethics Review Panel deals with ethics approval and scientific misconduct. Ethics approval by ERP and relevant external committees is required for all research activity involving human participants, human biological material and data, animals, or potentially harmful and/or irreversible changes to the environment. Ethics applications are co-signed by PhD candidate and supervisor(s). Awareness is raised during the induction days and trainings for PhD candidates (will be made mandatory). A train-the-trainer course will be offered in Spring 2016. A detailed scientific integrity guide will be available by the end of 2015.

**Thesis assessment committee and procedures**

The duration of a PhD at the UL is 3 years (Law, RGD). The CET can request for derogation from the UL president for maximum 1 year. After release of the dissertation by the CET, the examination committee (jury de thèse) meets with the PhD candidate evaluating dissertation, presentation and defence. This committee comprises at least 5 persons (6 for cotutelle) with a PhD degree, and includes the chair, the supervisor(s) and at least two examiners external to the degree-awarding institution(s) (see procedure).

# Annex F: Doctoral School manager – description of tasks

Day to day management of the school including but non-exhaustively:

* Assist the Head and Members' Council and Programme Co-ordinators and Committees in administrative and reporting matters of the Doctoral School.
* Deal with all routine cases and administrative procedures of admission, progress reports, graduation etc. on behalf of the Head
* Organisation of doctoral training modules
* Overview of supervisors
* Evaluation and quality assurance activities
* Apply for funding opportunities on the DS level in coordination with the programme coordinators and the Research Facilitators
* Budget monitoring and preparation
* Communication, including annual report
* Organise and follow-up an Alumni programme together with the quality and procedures officer.

More detailed description:

* and generally assist the Head and Members' Council and Programme Co-ordinators and Committees in administrative matters of the Doctoral School.
* Ensure streamlined and consistent administrative procedures with the BED.
* Inform and advise the DS Members’ Council about extension requests, drop-outs and suspension requests.
* Advise the Members' Council in any other requested matters
* Manage all Diploma supplement processes.
* Support the selection and organisation of doctoral training related to the research of the Doctoral School.
* Follow-up the list of all training modules on offer.
* Follow-up a list of supervisors affiliated to the programme.
* Elaborate together with the MC the yearly budget proposal for the Doctoral School Budget and maintain budgetary overview.
* Attends and reports to the Doctoral Education Committee, as well as the Faculty, RUs or ICs involved.
* Prepare an annual report on the DS, with specific sections on the programmes, based on the input of the programme coordinators. Presents to the MC, sends to Committee for comment.
* Communication with and reporting to funding bodies.
* Organise together with the MC regular evaluations of the Doctoral School and, together with the BED (Bureau des études doctorales / office of doctoral studies), of the progress of its doctoral candidates, report this to the Doctoral Education Committee and the RUs, ICs and Faculties involved.
* Implement the measures decided by the MC for quality assurance together with the Programme Committees, RUs, ICs and Faculties involved, as well as the Doctoral Education Committee.
* Ensures compliance to UL, national and international Codes of Practice and guidelines.
* Search for and apply for funding opportunities on the DS level in coordination with the programme coordinator and the RFs
* Implementation of the communication strategy of the DS (e.g. dissemination of important results/achievements).
* Organise and follow-up an Alumni programme together with the quality and procedures officer.

# Annex G: Doctoral School administrative assistant – description of tasks

The administrative assistants assist the Head, the Members' Council and the programme co-ordinators and committees in administrative matters of the Doctoral School. They support the Doctoral School manager. Tasks will include for example:

1. Follow up on DS Candidates(reports, ECTS, etc.)

Liaise with BED and Central administration for PhD admissions, CET reports etc, the whole path of the Doctoral Candidate at UL

Liaise with RU secretaries and supervisors for Doctoral Candidates related events (CET meetings/reports, defenses, etc…)

* Check the Doctoral Candidates internal and external activities (data from online forms, attendance certificates, etc…), including if the ECTS are accordingly to the candidate training plan and record them in the system (ACME)

Follow-up and organisation of the trainings (training moduls, travel assistance, internal communication)

Maintain and revise a list of all scientific training modules on offer

Liaise with trainers and PhD candidates for travel assistance, check expenses

Book rooms/catering

Communication to the Doctoral Candidates via Moodle/website

Communication to the DS supervisors

Support to the General Organisation of the DS (lists, budget, communication, meetings)

Maintain and revise lists of DS Doctoral Candidates, Supervisors, Committees, Boards members, etc.

Follow-up budgets of the DS

Maintain the Moodle information updated

Maintain the website and other marketing material of the Doctoral School. (together with the FSTC communication officer) Moodle/

Logistic and stationary maintenance

Organise meetings

Organise social events within the DS

Support the Manager in the organization/follow-up of the Alumni programme.