PhD School of the Politecnico di Milano
Regulations of the PhD Programme in:

BIOENGINEERING
Cycle XXX

Location: Milano Leonardo/Bovisa
1. General Information

PhD School of Politecnico di Milano

PhD Programme: BIOENGINEERING

Location of the PhD Programme: Milano Leonardo/Bovisa

Subjects (SSD): ING/INF 06  Electronica an Informatics Bioengineering
          ING-IND 34 Industrial Bioengineering

PhD School Website: http://www.polimi.it/phd

PhD Programme Website: http://www.phdbioengineering.polimi.it/
2. General presentation of the PhD Programme

The PhD Programme aims at developing scientific profiles who intend to practice their major activities in the field of Bioengineering. It addresses theoretical and experimental activities in 4 major research areas:

- Biomimetic engineering and micro-nano technologies
- Rehabilitation Engineering and Technology
- Technologies for Therapy
- Physiological Modelling and non-Invasive Diagnostics

More specific areas include but are not limited to:

Research focuses both on theoretical models, methods and technologies to support design of applications, software and hardware systems, together with tools and prototype device development. The involvement of industrial and clinical partners reinforces the mix between theory and application which is the strength of our PhD.

Stage periods in distinguished research institutes in Italy and abroad are an essential feature of the PhD candidate training.

PhD candidates in Bioengineering are about 25 per year, more than 70 in the three-year course.

The PhD Advisory Board is composed by professors and researchers in Bioengineering, belonging to the Department of Electronics, Information and Bioengineering and Chemistry Materials and Chemical Engineering Department. The PhD Board is responsible of all the candidate activities.

The external Reference Committee is the link toward industrial research, clinical applications with European and International perspectives.

The interest towards the activities of the PhD in Bioengineering has also been demonstrated over the years by the external financing of PhD Fellowships by entities as Hospitals and Companies.

Scientific and research activities of PhD Bioengineering candidates are strongly grounded on research Laboratories located inside and outside the Departments in cooperation with other research bodies and university hospitals.

Publications in scientific peer-reviewed journals, participation to international projects and the numerous collaborations confirm the excellence level of the activities carried out in the PhD
programme.

**Organization of the PhD study track**

The PhD study track is organized in three years (six semesters).

The first year is dedicated to identify a research topic and to make an overview study and definition of the PhD research theme. The PhD Board assigns a Tutor to each PhD candidate, who is a member of the PhD Board. The Tutor monitors and reviews all the duties and activities of the candidate.

In agreement with the PhD candidate proposal, the PhD Board nominates one or two Advisor(s) that support the PhD candidate research activity and are directly involved on it. At least one Advisor must belong to the bioengineering research area. The Advisor can be belong or not to the PhD Board and can also belong to an Institution different from Politecnico di Milano. Advisor can be supported by one or more co-Advisors.

During the first year, PhD candidates are strongly encouraged to attend courses specifically designed for the PhD track.

The second year is dedicated to experimental laboratory activities and to the development of the PhD project as well as to methodological and preliminary applicative parts.

Results will be assessed in the third year. The last semester is dedicated to preparing a written dissertation.

Every year, PhD candidates have to pass an exam where the PhD Board thoroughly reviews the year activities. The evaluation criteria adopted by the Board consider the originality and scientific value of the research, as well as the quality and results of the education track.

**3. Objectives**

The Doctoral Programme in Bioengineering has the main target to prepare PhD candidates through a strong interdisciplinary training education on engineering, mathematics, medical and biological knowledge to develop high level engineering problem-solving abilities in life sciences inside research groups or in private/public industrial contexts. At the end of the PhD programme, the candidate will be able to carry out innovative projects in the Bioengineering fields, by proposing new methodological and technical solutions as well as by properly evaluating the technology impact in the clinical and healthcare field as well as controlling services, processes and devices in the manufacturing biomedical system.

**4. Professional opportunities and job market**
Job opportunities include research positions in both academic and private institutions in Italy and abroad as well as in the industrial context. Fellowships directly sponsored by external subjects may easily lead to interesting work opportunities. A number of spin-off and start-up initiatives have also arisen from PhD research results. Employment in the Bioengineering field as PhD offers various interesting opportunities. Among the different professional job profiles, academic employments are well represented in Italy and abroad with Post-Doc high level careers in foreign Universities. Public and private hospitals also showed their interest for the Bioengineering PhD profile. Concerning industrial companies, PhD abilities and competences are particularly considered in R&D Units. This perspective is more likely to occur at European level than in Italy; however here job opportunities for Bioengineering PhDs remain high. Even public health services benefit of the PhD figures at their highest job positions as coordinators or division chiefs, where technic and scientific problems assume a significant relevance. Moreover, the PhD profile is particularly appreciated when creativity and ability to project innovation is required, in coordinating and controlling important research projects, having the objective to study and develop new products in Universities, Hospitals, Industries both in Italy and abroad.

5. Enrolment in the PhD Programme

5.1 Admission requirements

Italian and foreign citizens can apply. They are requested to have graduated in accordance with the pre-existing laws D.M. 3.11.1999 n. 509 or they to have a master of science degree in accordance with D.M. 3.11.1999 n. 509 or a master of science in accordance with D.M. 22.10.2004 n. 270 or similar academic title obtained abroad, equivalent for duration and content to the Italian title and for an overall duration of university studies of at least five years. The certified knowledge of the English language is a requirement for admission. Please refer to the Ph.D. School web site for details. The admission to the programme will be decided according to the evaluation of the curricula of the studies, the motivation letter and according to an illustrative paper about the development of a possible PhD research, which candidates will send contextually with their application to the admission announcement. All kind of MS degree curricula can be eligible for a application to the PhD programme in Bioengineering.

The knowledge of English language at least at B2 level is a minimum requirement, but higher knowledge levels are encouraged and will be considered as an evaluation parameter.

The admission to the programmes will be decided according to the evaluation of the curricula of the studies, the motivation letter and according to an illustrative paper about the development of a possible PhD research, which candidates will send contextually with their application to the admission announcement.
An interview with the candidate by phone or other electronic supports (e.g. Skype) can be requested by the Evaluation Board to complete the evaluation process.

5.2 Admission deadlines and number of vacancies (open positions)

The number of vacancies is indicated in the Call for admission to the 30° cycle of PhD Programmes: http://www.polimi.it/phd
Scholarships both on general and on specific themes are available, in accordance with what is specified in the call for admission.

Up to 32 positions are available. Positions may be covered by scholarships granted from the University and Research Ministry, from Politecnico, from companies or from the Departments, based on research project funds.

6. Contents of PhD Programme

6.1 Requirements for title awarding

The awarding of the PhD title in BIOENGINEERING requires a study and research activity of at least three years equivalent to full time study, research and development of PhD thesis.

The PhD Board evaluates at least once a year the advancement of the PhD candidate’s activities. The results of such an evaluation provide the judgement that allows the PhD candidate to pass to the next year.

The PhD in Bioengineering foresees 30 credits from PhD level courses to be acquired as indicated in the following paragraph 6.3. Among the 30 credits, at least 15 credits have to be acquired through PhD courses characterizing the PhD program in Bioengineering, at least 5 credits from PhD School Courses and 10 or less credits may be taken from external PhD courses, e.g. from other PhD programs. All the mentioned courses have to foresee an evaluation for the PhD candidate to let him acquire the corresponding credits.
Other activities like attendance of seminars, of PhD courses without evaluation, of workshops, conferences, and similar, contribute to create the curriculum of the PhD candidate. They have to be agreed with the Tutor and the Advisor/s (see below) in advance.

Additional requirements to the awarding of the PhD title in Bioengineering

At the time of admission to the final exam for PhD title awarding, the candidate needs to demonstrate the scientific impact of her/his activity.
Scientific publication activity of the PhD candidate is evaluated by the PhD Board according to quantitative and qualitative indicators (number of publications, indexing of the journals, Impact
Only publications reporting the affiliation to “Politecnico di Milano” will be considered in the evaluation operated by the PhD Board.

6.2 Development of the research and of the PhD thesis

The aim of the PhD programmes of Politecnico di Milano is the development in the candidates of a research-oriented mind-set, with expertise and skills in a specific research topic. To develop a research-oriented mind-set, the candidates have to acquire the capability of problem-solving in complex context, included a deep analysis of the problem, the identification of an original solution and the capability of evaluating a solution and its applicability in given contexts. These skills provide the PhD candidates with major opportunities of development in their research both in the academic field and in public and private organisations. The main objective is the development of an original research contribution. The PhD thesis has to contribute to increase the knowledge in the research field of the candidate. Besides, it has to be coherent with the research topics developed in the department, in which the PhD Programme chosen by the candidate, is carried out.

The original research has to be submitted through a PhD thesis which contains and discusses the contribution, even in the field of the state of the art in the research community about the research issue. The PhD research will be developed according to the guideline of a supervisor, who supports the candidate in the setting-out and in the everyday activities regarding the development of the thesis. The supervisor does not have to be a member of the Professors Board and can also belong to an institution different from Politecnico di Milano. The supervisor can be supported by one or more co-supervisors. To develop the capability of carrying out research activities, the candidate will have to attend the courses according to the PhD programme, defined for his/her study plan and pass them with a positive evaluation. For each candidate admitted to the programme, a tutor, belonging to the Board of Professors, is appointed. The tutor supervises and supports the candidate him/her-self in the overall training path. The choice of the courses will be overseen by the tutor, and it will be formalized in a study plan and approved by the Coordinator of the PhD Programme.

Other activities for the development of own personal skill and research expertise are encouraged during the PhD path. The candidate has to acquire the capability to present and discuss his/her work in his/her research community. Consequently both the participation to international conferences and publication of the research results in international magazines with review are encouraged. The candidates are also encouraged to carry out part of their research activities in contact with other research groups in their interest field, preferably abroad. Research visits of at least three months are strongly encouraged at research groups through which the candidate can acquire further skills to develop his/her research work and the thesis. Specific research activities can require longer stay abroad (i.e. 9 months are mandatory for the Scuola Interpolitecnica di Dottorato).
The duration of the programme is normally three years.

**6.3 Objectives and general framework of the teaching activities**

The PhD Programmes and the PhD School may activate various types of training with different valences (courses, seminars, project workshops, laboratories). All the activities will aim at:

1. creating common starting knowledge for the PhD programme
2. examining the basic research issues (problems, theories, research methods), which represent the cornerstone of the PhD Programme and which identify clearly its cultural position;
3. deepening in a specialist way some research issues connected with the problems developed in the thesis

Lessons are usually in English language, except when indicated otherwise.

At least one path thoroughly in English language is foreseen in the PhD Programme. Some teaching activities provide with the rights to acquire ECTS credits (structured teaching activities); other activities, typically specialised and for which it is difficult to evaluate the learning and its quantification, fall within the scientific activities of which the Board of Professors takes into account in the overall evaluation, but the value of which is not quantified in ECTS.

Courses and activities are developed as follows:

- **Characterizing courses:** these are designed to develop PhD candidate expertise in structuring research programs in the area of their thesis. These courses should be attended in the first two years (mainly in the first year) in order to refine tools and methods to fully develop high-level research in the last part of the PhD period.

- **Other activities:** internships, external courses (held by companies or other institutions), national and international seminars, conferences and workshops, participation in national and international research projects, scientific paper writing and paper presentations on research results, support to teaching activities.

- **Development of the PhD Thesis:** all activities related to the Thesis.

The tables here below show the foreseen path for the candidates and they refer only to coursework activities. At the same time, the programme foresees that the candidate is devoted to the research activity in a continuous way, following the lead of his/her supervisor and of the Board of Professor.
First/Second Year

<table>
<thead>
<tr>
<th>Courses</th>
<th>Possible details or reference to following tables</th>
<th>Number of credits (min-max)</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD School Courses</td>
<td></td>
<td>Min 5</td>
<td></td>
</tr>
<tr>
<td>Courses characterizing the PhD Programme</td>
<td></td>
<td>Min 25</td>
<td>Should be selected on topics connected with research subject from PhD offered by the Politecnico di Milano and/or other Universities (subject to approval by the Board). Include at least one edition of the Annual Bioengineering School in Bressanone (mandatory).</td>
</tr>
</tbody>
</table>

Second and Third year

In the last half of the second year and during the whole third year the candidate should be devoted entirely to research and development of the PhD thesis. Exception to this rule could be participation to the Annual Bioengineering School in Bressanone, as stated above.

PhD PROGRAMMES

A) The PhD Programme in BIOENGINEERING organises the following Characterising Courses (see table A)

B) The PhD School organises every year general and Interdoctoral courses and courses with foreign professors. The acquisition of at least 5 credits is mandatory among the courses of B type. The list of Ph.D. courses organized by the PhD School is available at the following page http://www.dottorato.polimi.it/en/during-your-phd/phd-school-courses/

C) Other PhD courses. 5 of the mandatory credits can be obtained choosing among the PhD course of A or B type, or among other courses provided by other PhD programmes of Politecnico and/or external entities (in this case the previous approval of the supervisor, of the tutor and of the coordinator is mandatory)

For the admission to the final exam the acquisition of at least 30 credits is mandatory. These credits have to be acquired through the “characterising” PhD courses offered by the PhD Programme.

These credits must be acquired as follows:

- Characterizing courses offered by the PhD Programme in Bioengineering (A)
- General and interdoctoral courses offered by the PhD School (B)
- PhD courses offered by other PhD Programmes of the Politecnico (C)

Credits selected from courses belonging to set B should be at least 5.
Credits selected from courses belonging to set C must be approved in advance by the Advisor, tutor and by the Coordinator of the PhD Programme.

In the following, the scheduled planning the PhD Programme in Bioengineering is reported for the academic year 2014-15.

It is possible that other courses are activated at the PhD School even afterwards; in this case the candidates will be promptly informed. The candidates will be able to insert these new courses in their study plan.
Courses are offered every two years.

For the current cycle (XXX, Academic Year 2014-15), Courses offered by the PhD Programme in Bioengineering are summarized in Table A3 (Characterizing Courses) and B (Foreign Professors).
For up to date information always refer to
PhD School Website: http://www.polimi.it/phd
PhD Programme Website: http://www.phdbioengineering.polimi.it/

PREPARATORY COURSES (only if foreseen)

If the supervisor and the tutor find useful or necessary that the candidate attends preparatory courses (chosen among the activated courses at the Politecnico di Milano) the Board of Professors of the PhD programme can assign some extra-credits to be acquired to complete the training path. The credits acquired in this way will be considered as additional, in relation to the mandatory credits to be acquired with the PhD courses.

SPECIALISTIC COURSES, LONG-TRAINING SEMINARS

The attendance of Specialist Courses, Workshops, Schools, Seminars cycles is strongly encouraged and (if these seminars, workshops are certified and evaluated) may permit to acquire credits according the modalities established by the Board of Professors and previous approval of the study plan submitted by the candidate.
These courses and workshops can be inserted in the study plan, even if they are not evaluated (and therefore not qualified as credits), as optional “additional teaching”.

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### Table A1: PHD COURSES CHARACTERISING THE PHD PROGRAMME IN BIOENGINEERING

<table>
<thead>
<tr>
<th>Name of Course</th>
<th>Professor</th>
<th>Language</th>
<th>Credits</th>
<th>SSD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis and Synthesis of the Human movement</td>
<td>A Pedotti</td>
<td>English</td>
<td>5</td>
<td>ING-INF/06</td>
</tr>
<tr>
<td>Biomaterials and tissue engineering</td>
<td>MC Tanzi</td>
<td>English</td>
<td>5</td>
<td>ING-IND/34</td>
</tr>
<tr>
<td>Experimental Biomechanics</td>
<td>G Pennati</td>
<td>English</td>
<td>5</td>
<td>ING-IND/34</td>
</tr>
<tr>
<td>Bioreactors and regenerative medicine</td>
<td>S Mantero</td>
<td>English</td>
<td>5</td>
<td>ING-IND/34</td>
</tr>
<tr>
<td>Advanced processing of biomedical signal and data</td>
<td>S Cerutti</td>
<td>English</td>
<td>5</td>
<td>ING-INF/06</td>
</tr>
<tr>
<td>Computational nonlinear mechanic for biological tissues and materials</td>
<td>P Vena</td>
<td>English</td>
<td>5</td>
<td>ING-IND/34</td>
</tr>
<tr>
<td>Methods for biomaterials characterization</td>
<td>R Chiesa</td>
<td>English</td>
<td>5</td>
<td>ING-IND/34</td>
</tr>
<tr>
<td>Microscopy and molecular imaging</td>
<td>G Baselli</td>
<td>English</td>
<td>5</td>
<td>ING-INF/06</td>
</tr>
<tr>
<td>Neuroengineering</td>
<td>A Pedrocchi</td>
<td>English</td>
<td>5</td>
<td>ING-INF/06</td>
</tr>
<tr>
<td>Experimental project and statistical analysis</td>
<td>G Baroni, EG Caiani, ML Costantino</td>
<td>English</td>
<td>5</td>
<td>ING-INF/06</td>
</tr>
<tr>
<td>Electronic technologies in biomedical engineering</td>
<td>S Ferrante, G Ferrigno</td>
<td>English</td>
<td>5</td>
<td>ING-INF/06</td>
</tr>
</tbody>
</table>

### Table A2  OTHER Bioengineering PhD COURSES

<table>
<thead>
<tr>
<th>Name of Course</th>
<th>Professor</th>
<th>A.A./Semester</th>
<th>Credits</th>
<th>SSD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Bioengineering School (in Italian).</td>
<td>T.B.A.</td>
<td>September third week</td>
<td>5</td>
<td>ING-INF/06 ING-IND/34</td>
</tr>
</tbody>
</table>
### Table A3: PHD CHARACTERISING COURSES - AA 2014-2015

<table>
<thead>
<tr>
<th>SSD</th>
<th>Name of the Course</th>
<th>Professor (optional)</th>
<th>A.A./Semester</th>
<th>Language</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ING-INF/06</td>
<td>Scuola Nazionale Bioingegneria Annual Bioengineering School</td>
<td>T.B.A.</td>
<td>2014-15/2^</td>
<td>Italiano</td>
<td>5</td>
</tr>
<tr>
<td>ING-IND/34</td>
<td></td>
<td></td>
<td>(September 2015, third week)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Experimental project and statistical analysis</td>
<td>Baroni, Caiani, Costantino</td>
<td>2014-15</td>
<td>English</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Analysis and Synthesis of the Human Movement</td>
<td>Pedotti A</td>
<td>2014-15</td>
<td>English</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Microscopy and Molecular Imaging</td>
<td>Baselli G.</td>
<td>2014-15</td>
<td>English</td>
<td>5</td>
</tr>
</tbody>
</table>

### Table A4: PHD CHARACTERISING COURSES - AA 2015-2016 *

<table>
<thead>
<tr>
<th>SSD</th>
<th>Name of the Course</th>
<th>Professor (optional)</th>
<th>A.A./Semester</th>
<th>Language</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ING-INF/06</td>
<td>Scuola Nazionale Bioingegneria Annual Bioengineering School 2015</td>
<td>T.B.A.</td>
<td>2015-16/2^</td>
<td>Italiano</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(September 2015, third week)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ING-IND/34</td>
<td>Bioreactors and regenerative medicine</td>
<td>S Mantero</td>
<td>2015-16</td>
<td>English</td>
<td>5</td>
</tr>
<tr>
<td>ING-INF/06</td>
<td>Advanced processing of biomedical signal and data</td>
<td>S Cerutti</td>
<td>2015-16</td>
<td>English</td>
<td>5</td>
</tr>
<tr>
<td>ING-INF/06</td>
<td>Neuroengineering</td>
<td>A Pedrocchi</td>
<td>2015-16</td>
<td>English</td>
<td>5</td>
</tr>
<tr>
<td>ING-IND/34</td>
<td>Experimental Biomechanics</td>
<td>G Pennati</td>
<td>2015-16</td>
<td>English</td>
<td>5</td>
</tr>
</tbody>
</table>

*List to be completed*
Table B  COURSES WITH A FOREIGN PROFESSOR AA 2014-2015 and AA 2015-2016

<table>
<thead>
<tr>
<th>Name of Course</th>
<th>Professor</th>
<th>Language</th>
<th>Credits</th>
<th>AA</th>
<th>SSD</th>
</tr>
</thead>
<tbody>
<tr>
<td>the bioelectric modeling of the heart</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduction to LAB-ON-CHIP Technologies and biological applications.</td>
<td>Cooper-White Khademosseini,</td>
<td>English</td>
<td>5</td>
<td>2014-15</td>
<td>ING-IND/34</td>
</tr>
<tr>
<td></td>
<td>Redaelli A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optimal Design of Blood Contact Devices</td>
<td>Bluestein, Manning, Slepian</td>
<td>English</td>
<td>5</td>
<td>2015-16</td>
<td>ING-IND/34</td>
</tr>
<tr>
<td></td>
<td>G.B. Fiore</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human Friendly Robotics</td>
<td>De Momi</td>
<td>English</td>
<td>5</td>
<td>2015-16</td>
<td>ING-INF/06</td>
</tr>
</tbody>
</table>

Table C: Other PhD Courses
Always refer to the Politecnico di Milano web site, ‘Manifesto degli Studi – Corso Dottorato’ or for the up-to-date information.

6.4 Presentation of the study plan
Each PhD candidate will have to submit his/her study plan. The candidate will have the opportunity to review it periodically (every three months) in order to adapt it to every possible change of the training offer or to needs motivated by the development of his/her study plan. The study plan is approved by the Coordinator of the PhD programme, according to the modalities established by the Board of Professors of the PhD Programme itself.

6.5 Instructions for the annual exams
Every year the candidate is evaluated to be admitted to the next year.
In the annual exam of the third year the admission of the candidate to the final exam (held by the external Commission) is evaluated. The candidate presents his/her work to the Board of Professors at least once a year.
After every annual evaluation, the candidate will receive an evaluation (A/B/C/D) or, in case the candidate will not pass the exam, the candidate will be qualified “Repeating candidate” (Er) or “not able to carry on with the PhD (Ei)”. The last year, the candidate who has achieved sufficient results but who needs some more time to draw up his/her thesis, he/she can obtain a prorogation of a maximum of 12 months.

The PhD Programme in Bioengineering provides the following PhD candidate’s evaluations:
- 1st Year, Fall: admission to the 2nd year (A-B-C-D-E grade)
- 2nd Year, Fall: admission to the 3rd year (A-B-C-D-E grade)
- 3rd Year, Fall: yearly evaluation (A-B-C-D-E grade)

At the end of the 3rd year: admission to the final exam

In the annual exam the candidate presents his/her work to the Academic Board. During the first year, Ph.D candidates may be evaluated twice to promptly address any possible difficulty and to take the necessary actions, thus assuring smooth development of work throughout the entire PhD programme.

In the third year, the candidate presents the annual activity report and receives the corresponding evaluation (A/B/C/D etc.). He/she also presents the state of progress of the thesis work and a first version of the thesis, which is the manuscript that will be evaluated by two expert external reviewers.

At the end of this process, considering-
-the third year activity
-the first version of the thesis work
-the quality and number of publications
-the overall evaluation of the PhD process,

the PhD candidate is admitted to the final exam.

6.6 Other foreseen reviews

Not applicable

6.6 Instruction for the preparation of the PhD thesis

The PhD study and research work will be carried out, full time, during the three years of the PhD course. The possibility of stages or study periods in Italian or in foreign companies or external entities and universities is foreseen. The main objective is the development of an original research contribute. The PhD thesis has to contribute to increase the knowledge in the research field of the candidate. Besides, the thesis has to be coherent with the research issues developed in the department at which the PhD programme, chosen by the candidate, is developed. The candidate has to present the original thesis, discussing its contribution to the state of the art in the research field in the research community. The PhD research will be developed following the lead of a supervisor, who supports the candidate in the setting out and in the everyday activities regarding the thesis development. Each written dissertation will be submitted to the evaluation of two expert external reviewers that will suggest improvements and will rate the quality of the research project, proposed and developed on it. At the conclusion of the studies, admission of the candidate to the final exam will be evaluated by the Board of professors, and, afterwards, a final exam for the attainment of the title, in which the research work carried out and the thesis will be evaluated by an examination Committee composed by three members, of which at least two external evaluation members.
7. Laboratories, PhD Secretary Services

Bioengineering PhD candidate scientific and research activities receive strong support from Laboratories both internal and external to the Department in cooperation with other research bodies and university hospitals.

- Laboratory of Biological Structure Mechanics (LaBS) - CMIC, Polimi
- Laboratory of movement analysis “Luigi Divieti” – DEIB, Polimi
- Medical Informatics laboratory – DEIB, Polimi
- NearLab: The Neuroengineering and medical robotics Laboratory - DEIB, Polimi
- Biosignals, Bioimaging and Bioinformatics (B3 lab) – DEIB, Polimi.
- Biomaterials laboratory - CMIC, Polimi
- Biomedical Technology Lab, TBMLab – DEIB, Polimi
- Institute of Biomedical Engineering - CNR
- Experimental Micro and Biofluid dynamics (µBS Lab) – DEIB, Polimi.
- Computational Biomechanics Lab– DEIB, Polimi.
- Biocompatibility and Cell culture Lab (BioCell), CMIC, Polimi.

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8. Internationalization and other activities

Carrying out study and research at foreign research laboratories and institutions is strongly recommended.
Collaborations with foreign universities and labs are well established allowing PhD candidates to easily find contacts and research exchange opportunities.

The University also offers the possibility of PhD programmes with foreign universities as well as double and joint PhD programmes. Further information can be found on the PhD School and PhD programme websites.