



**POLITECNICO**  
MILANO 1863

## **POLITECNICO DI MILANO**

**Consiglio di Corso di Studio in Ingegneria Gestionale**

**Regolamento Integrativo della Prova Finale di Laurea e di Laurea Magistrale**

Approvato il 9 febbraio 2017

Il presente regolamento è un'integrazione del **Regolamento degli Esami di Laurea e di Laurea Magistrale della Scuola di Ingegneria Industriale e dell'Informazione** approvato dal Senato Accademico del 23.1.2017 e dalla Giunta della Scuola del 9.2.2017 e pubblicato al seguente link: [http://www.ingindinf.polimi.it/fileadmin/files/pdf\\_scuola/regolamenti\\_lauree/EsamiLaureaIntegratoAteneo3I.PDF](http://www.ingindinf.polimi.it/fileadmin/files/pdf_scuola/regolamenti_lauree/EsamiLaureaIntegratoAteneo3I.PDF)

### **Tipologie di prova finale per laurea**

La prova finale è di tipo:

**A** (presentazione e discussione da parte del Laureando di un Elaborato) per gli studenti del percorso Applicativo.

**B** consuntivazione di specifiche attività svolte dal Laureando durante gli anni di frequenza per gli studenti del percorso Propedeutico.

#### **Prova finale tipo A**

Gli studenti del percorso Applicativo devono redigere una relazione critica sullo specifico progetto svolto durante il periodo di tirocinio obbligatorio.

#### **Indicazioni editoriali**

L'elaborato deve avere una lunghezza massima di 50 pagine e sarà strutturato come segue:

- a) Frontespizio (1 pagina): deve riportare nome e matricola del laureando, nomi dei tutor accademici e aziendali
- b) Executive Summary (max. 2 pagine)
- c) Presentazione dell'impresa/ente dove è stato svolto il tirocinio (max. 4 pagine)
- d) Obiettivo iniziale del tirocinio
- e) Attività svolte nell'ambito del tirocinio (in questa sezione occorre descrivere le attività svolte dal laureando, precisando le tempistiche e la correlazione fra attività svolta e modelli imparati nella carriera universitaria, riportando possibilmente cenni bibliografici opportuni)
- f) Contributo originale del laureando (in questa sezione occorre evidenziare la metodologia applicata dal laureando nell'approcciarsi al progetto di tirocinio, e come è stato impostato lo svolgimento del tirocinio sotto la cura del tutor)
- g) Obiettivi conseguiti (in questa sezione occorre evidenziare i risultati ottenuti, introducendo opportuni indicatori di performance, e le criticità eventuali incontrate)

La relazione deve essere controfirmata dal tutor accademico e dal tutor aziendale.

#### **Valutazione del Relatore**

L'elaborato è controllato dal Relatore, e deve quindi essere consegnato al Relatore stesso almeno dieci giorni prima della seduta di laurea in cui l'elaborato sarà presentato. Il Relatore compilerà un modulo di relazione che verrà consegnato in segreteria didattica dipartimentale almeno due giorni prima della seduta di laurea. Nella relazione verrà espressa una valutazione in termini numerici da -1 a 7 che terrà conto delle capacità manifestate dallo studente durante la realizzazione dell'elaborato, dell'impegno dedicato, della qualità del risultato ottenuto. In casi eccezionali, sussistendo le condizioni descritte nel Regolamento della Prova Finale della Scuola di Ingegneria Industriale e dell'Informazione, il Relatore potrà proporre alla Commissione di Laurea l'assegnazione di un ulteriore incremento eccezionale pari a 1 punto centodecimale, per un totale quindi di 8 (otto) punti centodecimali.

### **Valutazione da parte della Commissione**

Il giorno dell'appello di laurea, il Laureando presenta la relazione alla Commissione (o Sottocommissione) di Laurea.

La Commissione di Laurea assegna al Laureando un incremento compreso tra -1 e 7 punti centodecimali. In casi eccezionali, sussistendo le condizioni descritte nel Regolamento della Prova Finale della Scuola di Ingegneria Industriale e dell'Informazione, potrà essere assegnato un ulteriore incremento eccezionale pari a 1 punto centodecimale, per un totale quindi di 8 (otto) punti centodecimali. La Commissione può anche assegnare la Lode, nel rispetto delle condizioni descritte nel suddetto regolamento. In particolare, la soglia da superare, prima dell'arrotondamento, è così definita:

$$V = \max(113 - 0.5L, 111) \text{ dove } L \text{ è il numero di lodi conseguite in carriera.}$$

La Commissione decide l'incremento prendendo in considerazione: il giudizio espresso dal Relatore, la presentazione, la discussione dell'elaborato nonché l'intero curriculum formativo.

### **Tempi e modalità di presentazione dell'elaborato**

La presentazione orale avviene di norma con l'ausilio di schermo e videoproiettore. A tale scopo i candidati dovranno giungere in aula dotati di proprio computer portatile, acceso e già predisposto per la presentazione. La presentazione deve durare al massimo 12 minuti e sarà seguita da una sessione di domande da parte della Commissione.

## **Prova Finale tipo B**

Per gli studenti del percorso Propedeutico alla Laurea Magistrale la prova finale consiste nella partecipazione ad un 'Business Game' cioè una competizione basata sulla simulazione di un contesto aziendale, che si svolge con cadenza annuale nel secondo semestre. Sono ammessi al Business Game coloro che hanno inserito nel piano degli studi la prova finale (3 cfu) e che hanno superato 2 esami su 3 fra: Economia e Organizzazione Aziendale, Gestione dei Sistemi Logistici e Produttivi, Gestione Aziendale. Gli studenti partecipano al Business Game in gruppi composti da 3 studenti (anche appartenenti a scaglioni differenti). Ogni gruppo rappresenta un'azienda. L'azienda compete in un contesto competitivo composto da diversi gruppi.

Obiettivo della squadra durante il Business Game è duplice: da un lato il gruppo è chiamato a massimizzare i risultati aziendali, dimostrando di saper prendere decisioni con riferimento al contesto competitivo e in risposta alle azioni dei concorrenti e alle mutevoli condizioni ambientali; dall'altro, il gruppo deve dimostrare di comprendere le relazioni causa-effetto tra le decisioni prese e la performance ottenuta, dimostrando così di imparare dagli errori commessi. Ogni gruppo compila una relazione descrittiva dell'attività del gioco, che illustra il processo decisionale in base al quale il gruppo ha impostato la gestione dell'azienda (dalla definizione della strategia aziendale alla scelte di determinate pratiche operative) e in cui il gruppo discute l'esito delle proprie decisioni e la loro conseguente ritaratura.

Il regolamento e le modalità di partecipazione sono disponibili sul sito Internet [www.dig.polimi.it/business-game](http://www.dig.polimi.it/business-game).

### **Indicazioni editoriali**

La relazione si compone di due parti, strutturate come di seguito indicato:

1. Analisi iniziale
  - a. Analisi della situazione iniziale
  - b. Definizione della strategia aziendale (strategia corporate, di business unit, di area funzionale)
2. Analisi finale:
  - a. Analisi critica dei risultati ottenuti alla luce della strategia iniziale e sue eventuali modifiche
  - b. Commento finale.

Ciascuna parte della relazione avrà una lunghezza massima di 15 pagine e sarà redatta in lingua inglese.

Ciascun gruppo in gioco consegna la relazione rispettando le scadenze pubblicate sul sito [www.dig.polimi.it/business-game](http://www.dig.polimi.it/business-game).

### **Valutazione dell'attività da parte della Sottocommissione di Laurea**

La relazione verrà presentata dagli studenti ad una Sottocommissione di Laurea, nominata dal Presidente del CCS o dal suo Delegato per gli Esami di Laurea e riunita in tempi antecedenti la sessione di laurea. La Sottocommissione, alla fine della presentazione, definisce per ogni studente una proposta di incremento per la Prova Finale. Tale incremento viene successivamente comunicato alla Commissione di Laurea che opera nella data stabilita dalla Scuola per l'Esame di Laurea

La Sottocommissione assegna al Laureando un incremento compreso tra -1 e 7 punti centodecimali, prendendo in considerazione: la relazione, la presentazione, la discussione, la performance della squadra durante la simulazione.

### **Tempi e modalità di presentazione dell'elaborato**

La presentazione orale avviene di norma con l'ausilio di schermo e videoproiettore. La presentazione è di gruppo. La presentazione deve durare al massimo 12 minuti e sarà seguita da una sessione di domande da parte della Sottocommissione.

### **Determinazione finale dell'incremento di Laurea**

Nella data stabilità dalla Scuola per l'Esame di Laurea, la Commissione di Laurea decide l'incremento da attribuire al Laureando, determinando così il punteggio finale di Laurea.

La Commissione assegna al Laureando l'incremento prendendo in considerazione l'incremento proposto dalla Sottocommissione e l'intera carriera all'interno del Corso di Laurea.

L'incremento sarà compreso tra **-1 e 7** punti centodecimali. In casi eccezionali, sussistendo le condizioni descritte nel Regolamento della Prova Finale della Scuola di Ingegneria Industriale e dell'Informazione, potrà essere assegnato un ulteriore incremento eccezionale pari a 1 punto centodecimale, per un totale quindi di 8 (otto) punti centodecimali.

La Commissione può anche assegnare la Lode, nel rispetto delle condizioni descritte nel suddetto regolamento. In particolare, la soglia da superare, prima dell'arrotondamento, è così definita:

$$V = \max(113 - 0.5L, 111) \text{ dove } L \text{ è il numero di lodi conseguite in carriera.}$$

La Commissione verbalizza il voto di laurea nei registri preposti.

## **Tipologie di prova finale per laurea Magistrale**

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## 1. Introduction

The final project represents the last exam for student's graduation. It is a synthesis of knowledge acquired during the M.Sc. course and it is presented in front of a commission of professors. Italian law attributes a legal value to graduation and to the School degree; hence the presentation testifies that the student deserves the acknowledgement of being a management engineer.

In the final work students are required to show research and entrepreneurial capabilities in the development of a self-contained project, mostly aiming and disclosing new knowledge, skills and competences. As a consequence, novelty of developed knowledge, methodological and logical straightforwardness represent key parameters to evaluate the project.

## 2. Plagiarism

The novelty of the thesis is to be interpreted into various forms: novelty of the topics investigated, novelty of the empirical base of research, novelty of the interpretation of phenomena, etc. but there is a further level of novelty that is absolutely vital: total absence of plagiarism.

Plagiarism is the *"use or close imitation of the language and thoughts of another author and the representation of them as one's own original work"* (1995 Random House Compact Unabridged Dictionary). A final work is grounded on extant knowledge, thus the reference to the work and the thoughts of other authors is not only useful but essential for the straightforwardness of the work. Nonetheless, referring to previous work is totally different from imitating or stealing the work of someone else pretending to be its author. This is not only morally deplorable, but also and foremost illegal. For this reason, the final works will be scrutinized also with a suited software and, in case of plagiarism, the student can undergo a severe disciplinary action.

## 3. Organization of the work

Every final project involves at least two kinds of actors:

- 1) The **student**, responsible for the content and for all the activities leading to the design and the implementation of the work. The final project can be signed by one or two students, ideally the team should be made by one Italian and one foreign student.
- 2) The **supervisor**, a Politecnico di Milano Professor or Assistant Professor, which guarantees for the work being relevant within the scope of Management Engineering and provides the graduation commission with an evaluation.

Further possible actors involved:

- 3) The **co-supervisor**, a research fellow, a professor or another person supporting the supervisor in the management and the supervision of the final work.
- 4) The **discussant**, a Politecnico di Milano Professor or Researcher, not involved in the supervision, selected to review the final work in case it takes the form of a dissertation with discussant.

## 4. Types of projects

The M.Sc. in Management Engineering offers the students three types of final projects with different levels of involvement and expected contribution. In particular:

- **Report** without discussant
- **Thesis** without discussant
- **Dissertation** with discussant

#### 4.1. Report

The report illustrates an applicative work taking one of the following forms:

- Report on **empirical activities** (generally, short stages and internships) discussed in the glance of theories acquired during the M.Sc.; Internship information can be required by the Career Service: <http://www.careerservice.polimi.it/en-US/Home/Index/>.
- Review of the **state-of-the-art scientific literature** on a relevant topic, with a preference to cross-disciplinary issues and interaction of diverse theories and backgrounds. The literature review is aimed at summarizing and systematizing extant knowledge.

The whole work is approximately 50 pages long (including the executive summary, excluding references).

The report is evaluated by the supervisor. The work is presented on the graduation date to the graduation commission with a short presentation (max 10 minutes out of any questions). A hard copy of the final work has to be submitted to the commission during the presentation.

The possible increment to the final mark with a project is between -1 and 2/110. The commission proposes an increment in the glance of the content presented and the quality of the presentation and the final increment is the weighted average between the supervisor increment (60%) and the commission increment (40%).

The interaction between the student(s) and the supervisor is sporadic and based on necessity. The overall expected elapsed time for a project can be estimated in 3-5 months (including the internship, if present).

#### 4.2. Thesis without discussant

A thesis without discussion is a final work taking one of the following forms:

- **Empirical activity** conducted during an internship or through interviews or other data collection methods, embedded in a state-of-the-art scientific literature review that should clarify student's understanding of the topic. The features of the work derives from (i) the literature review (ii) the empirical effort (iii) the discussion of the implications for academicians and practitioners. The whole work is approximately 100-150 pages long (including the executive summary, excluding references).
- **Systematic literature review** based on a purely theoretical work in which students analyse all the literature on specific, well-established topics to provide a synthesis of what has been discovered so far, what is being analysed and the main challenges for future research. With respect to literature review of a report, in a thesis without discussant the student should provide: i.) the adoption of more through methodologies such as for example content analysis within a systematic approach; ii.) and/or the creation of innovative interpretations; iii.) and/or the design of research agendas to fill literature gaps highlighted in the analysis. The whole work is approximately 100-150 pages (including the executive summary, excluding references).
- A detailed **case study** to be ideally adopted for teaching purposes. This form is a pilot experimentation activated starting from the graduation session in July 2016. The student/s should find a business case, based on a short internship, identify a specific problem, and formulate the solution based on topics and methodologies learned during the MSc. program. The final document should be made of: the description of the case and the problem (approximately 15/20 pages), digital and multimedia materials to support the case, the teaching note describing the solution of the problem and the methodologies adopted (approximately 25/30 pages).

The work is evaluated by the supervisor, which proposes the commission an increment. Results are presented on the graduation date to the commission (max 12 minutes out of any questions). A hard copy of the final work has to be submitted to the commission during the presentation.

The possible increment to the final mark with a thesis without a discussant is between -1 and 4/110. An extra point can be attributed by the supervisor and the commission in case of exceptional contribution and brilliant presentation of the work. The commission proposes an increment in the glance of the content presented and the quality of the presentation and the final increment is the

weighted average between the supervisor increment (50%) and the commission increment (50%). The interaction between the student(s) and the supervisor in the thesis is periodical along the project in order to have continuous reviews. The overall expected elapsed time for a thesis without discussant can be estimated in 4-7 months (including the internship, if present).

#### 4.3. *Dissertation with discussant*

A Dissertation is a project aimed at developing **new knowledge or innovative approaches about a topic of relevant interest for the scientific and the practitioner communities**. It aims, starting from a thorough analysis of scientific literature, at developing a theory or a model (with specific research questions and methodology) to be tested through information and data collection and analysis involving primary sources of information. The outcomes are discussed to disclose theoretical and practical/managerial implications. The novelty, in a dissertation, lies in (i) the critical review of literature, (ii) the development of research questions, hypothesis and frameworks, (iii) new models and empiricism gathered, (iv) the discussion of the empirical results and outcomes implications.

The whole document is approximately 200 pages long (including the executive summary, excluding references).

The work is evaluated by the supervisor and by a discussant independently. In order to let the discussant evaluate the outcome, research dissertation has to be delivered about one month before the discussion. The work is presented on the graduation date to the commission with a presentation (max 15 minutes out of any questions). A hard copy of the final work has to be submitted to the commission during the presentation.

The possible increment to the final mark with a research dissertation is between -1 and 7/110. An extra point can be attributed by the supervisor, the discussant and the commission in case of exceptional contribution and brilliant presentation of the work. The commission proposes an increment in the glance of the content presented and the quality of the presentation and the final increment is the weighted average between the supervisor increment (30%), the discussant increment (20%) and the commission increment (50%).

The overall expected elapsed time for a thesis with discussant can be estimated in 8-12 months (including the empirical work).

Only for dissertation with discussant and defence, the commission can decide to assign the *cum laude* when the conditions included into the Final Graduation Exam Regulations are respected and according to the following formula ( $V$  = final evaluation;  $L$  = number of exams *cum laude*):

$$V > \max(113 - 0.5L, 111)$$

#### 4.4. *Types of projects summary*

Type	Presentation	Grade	% Weight	Average time	Uncertainty
<b>Report</b>	Max 10 minutes out of any questions	-1/+2 on 110	Supervisor increment (60%) Commission increment (40%)	3-5 months	If the student accomplishes all the objectives set by the supervisor, there should not be any level of uncertainty about the graduation date.
<b>Thesis</b>	Max 12 minutes out of any questions	-1/+4 (+5) on 110	Supervisor increment (50%) Commission increment (50%)	4-7 months	If the student accomplishes all the objectives set by supervisor, uncertainty will lie mainly in the time requested for gathering empiricism, which could impact on the graduation date.
<b>Dissertation</b>	Max 15 minutes out of any questions	-1/+7 (+8) on 110	Supervisor increment (30%) Discussant increment (20%) Commission increment (50%)	8-12 months	Uncertainty depends on the fact that the value of the contribution can be evaluated only in the glance of the final results, hence extra, formerly unexpected, empiricism may be requested in order to reach the academic status of dissertation. This can impact even significantly on the time length of the work.



## 5. How to define your report, thesis, dissertation

The final work must deal with a topic of interest for both the student(s) and the supervisor. It is vital that the student is strongly committed in order to get a positive and successful experience out of the final project. Hence, motivation and interest are the first drivers when detecting the topic of the final work.

Two main ways to define the topic are possible:

- 1) The supervisor provides the topic
- 2) The student(s) propose the topic to a supervisor and the supervisor accepts the proposal

Generally students are suggested, if they do not have any particular proposal to carry out, to get in contact with professors operating in the areas of major interest for them. Most of professors use to publish a (non-exhaustive) list of topics for final works on their personal page on DIG website <http://www.dig.polimi.it/index.php?id=360> and/or on the corsi-on-line platform <https://beep.metid.polimi.it/>.

If students wish to propose a topic, they are suggested to start investigating it autonomously in order to seek novel areas to analyse, to prepare a 1-2 pages proposal with some specifications about the objective, the novelty/relevance of the topic and the methodology proposed for the empirical exercise, and to submit it to potentially interested supervisors. The supervisor can accept the proposal, modify it and propose it back to the student or reject it.

Students might propose possible internships as the basis of their projects.

Students should have a proper background in terms of research methods. Hence, students access to documents or seminars related to research methods for management, economics and industrial engineering is strongly encouraged in all cases (e.g. literature review, research case studies, surveys, teaching case studies).

## 6. Commitment and time management

Students are completely responsible for time management during the final work, and the time efforts above mentioned are based on an average of committed full time students.

## 7. Instructions for on line thesis submission and approval

Instructions regarding the on line submission and approval of post-graduate thesis are

available in the following website: <http://www.tedoc.polimi.it/en/services/thesis-submission/>

[http://www.tedoc.polimi.it/uploads/media/PoliTesi\\_Instructions.pdf](http://www.tedoc.polimi.it/uploads/media/PoliTesi_Instructions.pdf)

## 8. Contacts

*E-mail:*

[management-engineering@polimi.it](mailto:management-engineering@polimi.it)

[segreteriaDidattica.dig@polimi.it](mailto:segreteriaDidattica.dig@polimi.it)

*Useful Websites:*

[http://www.dig.polimi.it/index.php?id=336  
&L=2](http://www.dig.polimi.it/index.php?id=336&L=2)

<http://www.polimi.it/en/students/from-enrolment-to-degree/degree-examination/theses-and-graduation-essays/> <http://www.ingindinf.polimi.it/didattica/esami-di-laurea-e-laurea-magistrale/>

## **APPENIDX:**

### **Possible format of the final work (thesis and dissertation)**

A final work, whatever the specific type of work, is a document that should be read by potentially every person with a sound managerial background, and the reader should be able to find all and only the relevant information to understand the effort and the outcomes of the students. The form of the final work is an important aspect in its evaluation.

Generally, the research dissertations have at least seven distinct conceptual parts (for projects and thesis without discussant some of them may be not applicable):

- 1) Abstract: a brief summary of the work (3-10 pages long, on average) where the following aspects are detailed:
  - a. Purpose of the study
  - b. Brief notes on extant knowledge
  - c. Design/methodology/approach
  - d. Main findings
  - e. Research limitations/implications (if applicable)
  - f. Practical implications (if applicable)
  - g. Originality/novelty (if applicable)
- 2) Introduction: first part of the main body of the text, aimed at emphasizing the topic investigated and its relevance/novelty
- 3) Literature review: in this part, which represents also the findings part for purely theoretical works, extant knowledge is analysed, compared, and systematized
- 4) Objectives, research methodology and research framework: the gaps of literature, the research questions and the method to provide an answer are presented thoroughly here. If applicable, the conceptual/theoretical framework tested in the empirical exercise has to be detailed
- 5) Findings: summary/detail of the outcomes of the study (for theoretical works, this part is joint with the literature review). Here results are just presented, and not discussed
- 6) Discussion and conclusions: this part includes
  - a. comments on the findings
  - b. answer to the research questions, with a particular emphasis on the discussion on how the outcomes confirm/confute extant knowledge or add essential new knowledge
  - c. implications of the study in terms of theoretical contribution and guidelines/suggestions for practitioners (if applicable)
  - d. limitations of the study, i.e. discussion of the research hypothesis and methodological choices made in order to identify what is the domain where the answers provided are to be considered reliable. These limitations should suggest possible future developments of the work.
  - e. Conclusion, i.e. a brief (2-3 pages) summary of the novel insights provided in the study.
- 7) List of references

*Reference style: Citation and reference style (within the narration)*

1 author:

- as argued by Cova (2003), marketing is...
- Tribal marketing levers on sociality (Cova 2003)...

2 authors:

- Pietroni and Rumiati (1999) contend that marketing...
- Reason and emotions coexist in purchase processes (Pietroni and Rumiati 1999)

Exact citation

- As Sheth (2002, p. 196) notes “marketing is...”
- “marketing lies at the core of firm-customer relationships” (Kotler, 2004 pp. 192-3)

3 authors or more:

- Thorbjørnsen and colleagues (2002) say that...
- Brand relationships are not merely transaction oriented (Thorbjørnsen et al. 2000)

More citations:

- Literature has widely emphasized the relevance of symbolism (Osgood 1957; Peterson and Marino 2003; Schmitt 1998; Thorbjørnsen et al. 2002).

References (to be put at the end of the work)

Book:

- Cova, B. (2003). *Il marketing tribale*. Milano: Il Sole 24 ore
- O’Sullivan, E.L. & Spranger, K.J. (1998). *Experience marketing. Strategies for the New Millennium*, New York: Venture Publishing.

Journal paper:

- Peterson, R.A. & Merino, M.C. (2003). Consumer information search behaviour and the Internet. *Psychology & Marketing*, 20(2), 99–121
- Pietroni, D. & Rumiati, R. (1999). Quando il cuore decide a ragione: la scelta d’acquisto di prodotti funzionali ed espressivi. *Micro & Macro Marketing*, VIII(1), 105-127
- Thorbjørnsen, H., Supphellen, M., Nysveen, H. & Pedersen, P.E. (2002). Building brand relationships online: a comparison of two interactive applications. *Journal of Interactive Marketing*, 16(3), 17-34.

Research report:

- Politecnico di Milano – School of Management (2003). *L’E-commerce B2C in Italia tra multicanalità e innovazioni nell’offerta*.
- Osgood, C.E. (1957). *Motivational dynamics of language behaviour*. Nebraska Symposium on Motivation, University of Nebraska Press, 348-424.

Online-only material:

- Schmitt, B. (1998). “The power of a luxury experience”, retrieved on 2006/12/23 at: [www.exgroup.com/index]