

Har den 13 december 2019 uppfyllt kraven för Teknologie doktorsexamen, ämne: Polymera konstruktionsmaterial på forskarnivå, 240 högskolepoäng, i enlighet med bestämmelserna i högskoleförordningen SFS 1993:100 med ändring 2006:1053 samt lokala bestämmelser.

Has 13 december 2019 on third cycle fulfilled the degree requirements for the Degree of Doctor of Philosophy (PhD), Subject: Polymeric Composite Materials 240 credits, in accordance with the regulations governing Swedish Higher Education SFS 1993:100 and the amendment 2006:1053 and internal rules and regulations.

Kurs Course	Högskolepoäng Credits	Datum Date
Rymdmaterial Aerospace Materials	9,0	2018-12-11
Kompositmaterial Composite Materials	9,0	2018-12-11
FEM i tekniska tillämpningar FEM in Engineering Problems	9,0	2018-12-11
Avhandlingspoäng, 181211 Licentiate Thesis, 181211	40,0	2018-12-11
Fiberkompositernas Mekanik Mechanics of Fiber Composites	7,5	2018-12-11
Projektfinansiering Research Funding	3,0	2018-12-11
Summer School DocMASE, Luleå 2016 Summer School DocMASE, Luleå 2016	2,0	2018-12-11
Summer School DocMASE, Luleå 2017 Summer School DocMASE, Luleå 2017	2,0	2018-12-11
Kohesiva och kontaktelement Cohesive and Contact Elements	7,5	2019-02-11
Experimentell mekanik Experimental Mechanics	9,0	2019-02-11
Brottmekanik Fracture Mechanics	9,0	2019-02-11
Avhandlingspoäng Licentiate Thesis/Doctoral	30,0	2019-03-29
Behörighetsgivande högskolepedagogisk kurs Qualifying Course for University Teachers	7,5	2019-05-29
Avhandlingspoäng Doctoral Dissertation	45,5	2019-09-04
Avhandlingspoäng Doctoral Dissertation	50,0	2019-09-25
Doktorsavhandling Doctoral thesis		2019-12-13

Kurs  
Course

Högskolepoäng  
Credits

Datum  
Date

**Avhandling**  
**Doctoral dissertation**

Inverkan av mikrostruktur på sprickutveckling mellan fiber och matris i fiberkompositer under dragbelastning.  
*Influence of Microstructure on Debonding at the Fiber/Matrix Interface in Fiber-Reinforced Polymers under Tensile Loading.*

Luleå den 18 december 2019 / 18 December 2019



Catarina Forsberg  
Examenshandläggare  
Degree Evaluation Officer

För kurs på forskarnivå ges endast betyget Godkänd.  
*The only grade awarded for course on the third cycle is Pass.*

60 högskolepoäng motsvarar ett läsårs heltidsstudier.  
*60 credits are equivalent to one academic year of full-time studies.*



## Degree certificate

we hereby certify that:

Mr **DI STASIO LUCA** born in CERNUSCO SUL NAVIGLIO (MI) on 19/04/1988, has gained at this Politecnico on 03/10/2013 the laurea magistrale (equivalent to Master of Science) in

**SPACE ENGINEERING**

(D.M. 270/04 - class LM-20 of Laurea Magistrale in Aerospace and aeronautical engineering)

Score is 110/110.

We certify, moreover, that the same has passed the following evaluation tests with the result, expressed in thirtieths, indicated at the side; the value of each is given in credits (CFU/ECTS) and the corresponding scientific-disciplinary sector (SSD) is indicated:

	Description	SSD	Credits SSD	ECTS	Score	Semester	Exam date
	AEROSPACE STRUCTURES	ING-IND/04	10.0	10.00	28	1	10/02/2011
	AEROTHERMODYNAMICS	ING-IND/06	10.0	10.00	30	1	17/02/2011
	ORBITAL MECHANICS	ING-IND/03	10.0	10.00	30	1	23/02/2011
	FUNDAMENTALS OF THERMOCHEMICAL PROPULSION	ING-IND/07	10.0	10.00	28	2	25/07/2011
	COMMUNICATIONS SKILLS	ING-IND/15	2.0	2.00	APPROVED	2	26/09/2011
U	MATHEMATICAL METHODS FOR ENGINEERS	MAT/05	10.0	10.00	APPROVED	1	14/07/2012
U	SPACE ENGINEERING DESIGN SYNTHESIS	ING-IND/05	6.0	6.00	APPROVED	2	14/07/2012
U	SPACE SYSTEMS DESIGN	ING-IND/03	6.0	6.00	APPROVED	2	14/07/2012
U	SPACECRAFT ATTITUDE DYNAMICS AND CONTROL	ING-IND/05	8.0	8.00	APPROVED	1	14/07/2012
U	AEROSPACE TECHNOLOGIES AND MATERIALS II	ING-IND/04	4.0	8.00	APPROVED	1	14/07/2012
		ING-IND/02	4.0				
U	TELECOMMUNICATION SYSTEMS	ING-INF/03	6.0	6.00	APPROVED	1	14/07/2012
	DYNAMICS AND CONTROL OF AEROSPACE STRUCTURES WITH FUNDAMENTALS OF AEROELASTICITY	ING-IND/04	10.0	10.00	28	2	28/08/2012
	HEAT TRANSFER AND THERMAL ANALYSIS	ING-IND/10	6.0	6.00	28	2	07/02/2013
	GRADUATION THESIS AND FINAL WORK			20.00	APPROVED	1	17/09/2013

## Legend

U exams taken within an international mobility programme (B)

The weighted average, calculated on the evaluation tests passed, excluding exams as extra, is 28.75/30 (105.42/110).

Stamp duty paid using the virtual system by Authorization of the Ministry of Finance no. DT2/10/101212/00 dated 17.11.2000



AREA SERVIZI AGLI STUDENTI  
E AI DOTTORANDI

Milano, 03/12/2014 (dd/mm/yyyy)

Il Dirigente dell'Area Servizi agli Studenti e ai Dottorandi  
~~Assunta Marrese~~

The above handwritten signature is replaced with a printed signature of the responsible person according to Article 3, paragraph 2 of Legislative Decree no. 39 dated 12th February 1993.

The officer in charge CONFALONIERI ALESSANDRA

According to Article 15 of Law no. 183 dated 12th November 2011, the present certificate cannot be issued for Public Administration Offices or Private Operators of public services.

This document is valid abroad only upon legalization, if necessary.

The data reported have been extracted from the computerized archive of Politecnico di Milano according to Legislative Decree no. 39 dated 12th February 1993.

POLITECNICO DI MILANO



AREA SERVIZI AGLI STUDENTI E AI DOTTORANDI  
Servizio Segreteria Studenti  
Dott.ssa Alessandra Confalonieri



# DREXEL UNIVERSITY - Office of the University Registrar

CENTER CITY CAMPUS • MAIL STOP 445 • 245 N. 15TH ST., PHILADELPHIA, PA 19102-1192  
UNIVERSITY CITY MAIN CAMPUS • 3141 CHESTNUT ST. • CURTIS HALL RM 261 • PHILADELPHIA, PA 19104



Student No: 12505124

Record of: Luca Di Stasio  
Current Name: Luca Di Stasio  
Via Verdi 64  
20063 Cernusco Sul N,  
ITALY

Issued To: Luca Di Stasio  
Bruggeweg 17  
Zurich, 8037  
SWITZERLAND

Course Level: Graduate Quarter  
Only Admit: Fall Quarter 11-12

Current Program  
MS in Mechanical Engineering  
College: College of Engineering  
Major: Mechanical Engineering

Degrees Awarded MS in Mechanical Engineering 16-JUN-2012  
Major: Mechanical Engineering

SUBJ NO.	COURSE TITLE	CRED GRD	PTS R
MEM 591	Applied Engr Analy Methods I	3.00 A	12.00
MEM 633	Robust Control Systems I	3.00 A+	12.00
MEM 666	Advanced Dynamics I	3.00 A+	12.00
MEM 684	Mechanics Of Bio Tissues	3.00 A+	12.00
Ehrs: 12.00 GPA-Hrs: 12.00 QPts: 48.00 GPA:			4.00

Good Standing

Winter Quarter 11-12

SUBJ NO.	COURSE TITLE	CRED GRD	PTS R
MEM 591	Applied Engr Analy Methods I	3.00 A	12.00
MEM 633	Robust Control Systems I	3.00 A+	12.00
MEM 666	Advanced Dynamics I	3.00 A+	12.00
MEM 684	Mechanics Of Bio Tissues	3.00 A+	12.00
Ehrs: 12.00 GPA-Hrs: 12.00 QPts: 48.00 GPA:			4.00

Continued on next column

SUBJ NO. COURSE TITLE CRED GRD PTS R

Institution Information continued:

SUBJ NO.	COURSE TITLE	CRED GRD	PTS R
MEM 567	Advanced Dynamics II	3.00 A+	12.00
MEM 699	Design of nano-resonators	3.00 A	12.00
Ehrs: 12.00 GPA-Hrs: 12.00 QPts: 48.00 GPA:			4.00

Good Standing

Spring Quarter 11-12

SUBJ NO.	COURSE TITLE	CRED GRD	PTS R
MEM 593	Applied Engr Analy Methods III	3.00 A	12.00
MEM 699	Magnetostatic NEMS	3.00 A	12.00
MEM 733	Applied Optimal Control I	3.00 A+	12.00
MEM 800	ST:Applied Robust Control	3.00 A+	12.00
Ehrs: 12.00 GPA-Hrs: 12.00 QPts: 48.00 GPA:			4.00

Good Standing

TRANSFER CREDIT ACCEPTED BY THE INSTITUTION:

2011	Politecnico Di Milano	Earned Hrs	GPA Hrs	Points	GPA
TOTAL INSTITUTION		36.00	36.00	144.00	4.00
TOTAL TRANSFER		9.00	9.00	36.00	4.00
OVERALL		45.00	45.00	180.00	4.00

INSTITUTION CREDIT:

Fall Quarter 11-12

SUBJ NO.	COURSE TITLE	CRED GRD	PTS R
MEM 591	Applied Engr Analy Methods I	3.00 A	12.00
MEM 633	Robust Control Systems I	3.00 A+	12.00
MEM 666	Advanced Dynamics I	3.00 A+	12.00
MEM 684	Mechanics Of Bio Tissues	3.00 A+	12.00
Ehrs: 12.00 GPA-Hrs: 12.00 QPts: 48.00 GPA:			4.00

Good Standing

Winter Quarter 11-12

SUBJ NO.	COURSE TITLE	CRED GRD	PTS R
MEM 591	Applied Engr Analy Methods I	3.00 A	12.00
MEM 633	Robust Control Systems I	3.00 A+	12.00

Continued on next column

AN OFFICIAL SIGNATURE IS WHITE WITH A BLUE BACKGROUND-REJECT DOCUMENT IF SIGNATURE BELOW IS DISTORTED

A BLACK AND WHITE TRANSCRIPT IS NOT OFFICIAL - VOID APPEARS IF COPIED



Joseph J. Salomone, University Registrar

This officially sealed and signed transcript is printed on blue DCS-P-SAF security paper with the name of the university printed in white type across the face of the document. A raised seal is not required. Translucent globes must be visible from both sides when held toward a light source.

THIS IS AN OFFICIAL TRANSCRIPT OF RECORD PURSUANT TO THE FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT OF 1974, AS AMENDED. THIS RECORD CANNOT BE RELEASED TO ANY OTHER PARTY WITHOUT THE WRITTEN CONSENT OF THE STUDENT.

NOTE: The column after GRD and PTS labeled R refers to whether or not certain repeatable courses are included (I) in the student's GPA. An (I) shown in this column indicates that the grade shown in the GRD column is included in the student's grade point average.



### GENERAL INFORMATION

### ACCREDITATION

COLLEGES AND SCHOOLS

DREXEL COOPERATIVE EDUCATION PROGRAM- Undergraduate Full-time Students

TRANSCRIPT FORMAT

**Combined Format** – A copy of the archived coursework will be attached to the current format style transcript for those students who started prior to 1979 and continued their education post 1979.

## ACADEMIC YEAR &amp; CREDIT HOUR EQUIVALENT

#### COURSE NUMBERING SYSTEM

Effective Fall term of 1992-93, Drexel University converted to a more definitive course numbering system. The numbering system defined course levels as noted below:

Undergraduate		Graduate
EC1 - 099	Specialty Courses	550 - 999
100 - 299	Lower Division Courses	
300 - 499	Upper Division Courses	

Courses taken for Honors credit will have a comment below the course entry that indicate "Course Taken for Honors Credit".

### EXPLANATION OF GRADES

(New +) Grade Scale- Effective Fall 2008)

Grade	Point Value
A+	4.0
A	4.0
A-	3.67
B+	3.33
B	3.00
B-	2.67
C+	2.33
C	2.00
C-	1.67
D+	1.33
D	1.0
F	0
AUD	Audit
CR	Credit
NCR	No Credit
OCU	Onsite Co-Operative Unit
EX	Exemption (Course previously taken)
NCU	Failed Work Term
P	Pass (Discontinued April 1988)
S	Satisfactory
T	Transfer credit awarded
U	Unsatisfactory
+	Courses within a block
W	Withdrawal
WF	Withdrawn-Failing (Discontinued October 1975)
WF	Withdrawn-Failing (Discontinued October 1975)
	<u>==Temporary Grades==</u>
INC	Incomplete
I	Incomplete-Contract (Discontinued September 1985)
IF	Failure (no grade reported on an Incomplete Contract)
IP	In Progress
ABS	Absent from Final
NR	No Grade Reported
NR	No Grade Reported
ZF	No Grade Reported (Discontinued September 1988)
E	Conditional Pass (Discontinued September 1973)

44. A temporary grade (except NGH) may be assigned at the discretion of the instructor who believes additional time is required to complete the course requirements.

**CALCULATING GRADE POINT AVERAGE (based on 4.0 scale)**

Add the credit hour value of all courses (GPA hours) in which a student receives a grade of A, A-, B, B-, C, D, F and divide the results into the total quality points (course grade points multiplied by course credits). This can be calculated on a term and cumulative basis. All courses taken while an Undergraduate are included in the undergraduate cumulative GPA.

Cumulative GPA Calculation for Repeated Courses (Policy prior to Fall 1999)

(iv) undergraduate student has the option to repeat a course up to five times in which grade was initially earned beginning with the Fall 1990-91 term and ending with the Summer 1999-00 term. The term GPA calculation remains the same; however, the cumulative GPA is calculated as follows: a) only the grade from the most recent enrollment will count in the cumulative GPA if the grade from the most recent enrollment is the same or better than the original grade and b) both grades will be calculated in the cumulative GPA if the grade from the most recent enrollment is lower than the original grade.

Cumulative GPA Calculation for Repeated Courses (Policy Effective Fall 2011)

Courses with an indicator of "T" in the R Column on the transcript will be included in the term and cumulative credits earned and GPAs; courses with an "E" in the R column will be excluded from term and cumulative GPA; but retained in term and cumulative credits attempted; courses with an "A" in the R column will be excluded from term and cumulative credits earned, but retained in term and cumulative credits attempted and calculated in the term and cumulative GPA.

TO TEST FOR AUTHENTICITY: Translucent globe icons **MUST** be visible from both sides when held toward a light source. The face of this transcript is printed on blue SECURE-SAFE paper with the name of the institution appearing in white type near the bottom of the entire document.

**ADDITIONAL TESTS:** When photocopied, a moist security statement containing the institutional name and the words VOID VOID VOID appear over the face of the entire document. When this paper is touched by fresh liquid bleach, an authentic document will stain brown. A black and white or color copy of this document is not an original and should not be accepted as an official institutional document. This document cannot be released to a third party without the written consent of the student. This is in accordance with the Family Educational Rights and Privacy Act of 1974. If you have any questions about this document, please contact our office. **ALTERATION OF THIS DOCUMENT MAY BE A CRIMINAL OFFENSE.**

DE185208 • SCRP-SAFE® Security Products, Inc. Cincinnati, OH • U.S. Patent 5,171,040

## DREXEL UNIVERSITY • OFFICE OF THE UNIVERSITY REGISTRAR LOCATIONS

Order City Helmsmann Campus • Mail Stop 445 • 245 N. 13th Street • Philadelphia, PA 19102-1582 • (215)-762-7032  
University City Main Campus • 3141 Chestnut Street • Curtis Hall Rm 261 • Philadelphia, PA 19104 • (215)-895-1493  
Queen Lane Medical Campus • 2900 Queen Lane • Suite 2-24 • Philadelphia, PA 19129 • (215)-991-8200



## Degree certificate

we hereby certify that:

Mr **DI STASIO LUCA** born in CERNUSCO SUL NAVIGLIO (MI) on 19/04/1988, has gained at this Politecnico on 22/09/2010 the laurea (equivalent to Bachelor of Science) in

**AEROSPACE ENGINEERING**

(D.M. 270/04 - class L-9 of degrees in Industrial Engineering)

Score is 110/110.

We certify, moreover, that the same has passed the following evaluation tests with the result, expressed in thirtieths, indicated at the side; the value of each is given in credits (CFU/ECTS) and the corresponding scientific-disciplinary sector (SSD) is indicated:

Description	SSD	Credits SSD	Cfu/ECTS	Score	Semester	Exam date
CHEMISTRY A	CHIM07	5.0	5.00	30 CUM LAUDE	1	11/02/2008
FUNDAMENTALS OF AEROSPACE ENGINEERING	ING-IND04	6.5	12.50	27	1	18/02/2008
	ING-IND06	1.0				
	ING-IND15	5.0				
	MAT05	5.0				
MATHEMATICAL ANALYSIS A AND GEOMETRY	MAT03	5.0	10.00	30	1	03/03/2008
	MAT03	5.0				
INFORMATICS C	ING-INF00	5.0	5.00	29	2	02/07/2008
EXPERIMENTAL PHYSICS A + B	FIS01	10.0	10.00	27	2	07/07/2008
BUSINESS ADMINISTRATION	ING-IND05	5.0	5.00	29	2	10/07/2008
MATHEMATICAL ANALYSIS B	MAT05	5.0	5.00	30 CUM LAUDE	2	14/07/2008
THERMODYNAMICS AND HEAT TRANSFER	ING-IND10	10.0	10.00	27	1	03/02/2009
THEORETICAL MECHANICS	MAT07	10.0	10.00	30	1	18/02/2009
INTEGRATION OF FUNDAMENTALS OF AEROSPACE ENGINEERING	ING-IND15	2.5	2.50	27	2	29/06/2009
CIRCUITS AND ELECTRONICS	ING-IND01	8.0	10.00	30 CUM LAUDE	1	30/08/2009
	ING-IND02	2.0				
	ING-IND03	2.0				
INTEGRATION OF CALCULUS 2	MAT03	2.5	5.00	30	3	02/07/2009
	MAT05	2.5				
FUNDAMENTALS OF AUTOMATIC CONTROL	ING-INF04	8.0	8.00	30	2	10/07/2009
APPLIED NUMERICAL ANALYSIS	MAT05	5.0	10.00	30 CUM LAUDE	2	31/07/2009
	MAT05	5.0				
AEROSPACE SYSTEMS	ING-IND05	8.0	8.00	28	2	06/09/2009
DYNAMICS OF AEROSPACE SYSTEMS	ING-IND13	8.0	8.00	28	1	18/02/2010
FUNDAMENTALS OF STRUCTURAL MECHANICS	ICAR08	5.0	10.00	30	1	23/02/2010
	ING-IND04	5.0				
FLUID DYNAMICS	ING-IND06	10.0	10.00	27	2	26/06/2010
AEROSPACE PROPULSION	ING-IND07	7.0	7.00	27	1	09/07/2010
AEROSPACE TECHNOLOGIES AND MATERIALS	ING-IND04	4.0	7.00	27	1	09/07/2010
	ING-IND22	3.0				
FUNDAMENTALS OF ATMOSPHERIC AND SPACE FLIGHT MECHANICS	ING-IND03	7.0	7.00	27	2	14/07/2010
PRINCIPLES OF AEROSPACE EXPERIMENTATION	ING-IND04	6.0	6.00	29	2	27/07/2010
INTEGRATION OF FINAL DEGREE TEST			2.00	APPROVED	2	15/09/2010
INTEGRATION OF FINAL DEGREE TEST			4.00	APPROVED	2	15/09/2010





AREA SERVIZI AGLI STUDENTI  
E AI DOTTORANDI

Description	SSD	CuECTS SSD	CuECTS	Score	Semester	Exam date
FINAL DEGREE TEST	ING-IND/07	1.0	3.00	APPROVED	2	15/05/2010
	ING-IND/03	1.0				
	ING-IND/04	0.5				
	ING-IND/22	0.5				

The weighted average, calculated on the evaluation tests passed, excluding exams as extra, is 28.56/30 (104.73/110).

Stamp duty paid using the virtual system by Authorization of the Ministry of Finance no. DT2/10/101212/00 dated 17.11.2000

Milano, 03/12/2014 (dd/mm/yyyy)

Il Dirigente dell'Area Servizi agli Studenti e ai Dottorandi  
Assunta Marrese

The above handwritten signature is replaced with a printed signature of the responsible person according to Article 3, paragraph 2 of Legislative Decree no. 39 dated 12th February 1993.

The officer in charge CONFALONIERI ALESSANDRA

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POLITECNICO DI MILANO



AREA SERVIZI AGLI STUDENTI E AI DOTTORANDI  
Servizio Segreteria Studenti  
Dott.ssa Alessandra Confalonieri

*Alessandra Confalonieri*