



Medellín
Headquarters

**UNIVERSIDAD
NACIONAL
DE COLOMBIA**

THE FACULTY SECRETARY

CERTIFIES

That DIEGO ALEJANDRO ZAPATA ALCARAZ, with ID No. 1036658687, with initial enrollment in the second academic period of 2013 in the INDUSTRIAL ENGINEERING Study Plan, approved the following subjects or academic activities totaling 193 credits:

SECOND ACADEMIC PERIOD OF 2013

CODE	SUBJECT OR ACADEMIC ACTIVITY	CREDITS	GRADE
1000044-M	ENGLISH I	3	AP Approved
3007202	FUNDAMENTALS OF ECONOMICS	3	4.0 Four Zero
3007321	INTRODUCTION TO ENGINEERING INDUSTRIAL	3	4.5 Four Five
1000008-M	VECTOR AND ANALYTICAL GEOMETRY	4	4.1 Four One
1000007-M	BASIC MATHEMATICS	4	4.7 Four Seven

FIRST ACADEMIC PERIOD OF 2014

CODE	SUBJECT OR ACADEMIC ACTIVITY	CREDITS	GRADE
1000004-M	DIFFERENTIAL CALCULUS	4	3.8 Three Eight
1000045-M	ENGLISH II	3	AP Approved
3007207	MACRO ECONOMY I	4	3.7 Three Seven
3007333	MANAGEMENT THEORY	3	4.2 Four Two
3007742	PROGRAMMING FUNDAMENTALS	3	4.8 Four Eight

SECOND ACADEMIC PERIOD OF 2014

CODE	SUBJECT OR ACADEMIC ACTIVITY	CREDITS	GRADE
1000005-M	INTEGRAL CALCULUS	4	4.1 Four One
3007212	MICROECONOMICS I	4	4.6 Four Six
1000003-M	LINEAR ALGEBRA	4	4.0 Four Zero





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FIRST ACADEMIC PERIOD OF 2015

CODE	SUBJECT OR ACADEMIC ACTIVITY	CREDITS	GRADE
1000007-M	DIFFERENTIAL EQUATIONS	4	3.8 Three Eight
3006914	STATISTICS I	4	4.8 Four Eight
1000019-M	MECHANICAL PHYSICS	4	3.6 Three Six

SECOND ACADEMIC PERIOD OF 2015

CODE	SUBJECT OR ACADEMIC ACTIVITY	CREDITS	GRADE
1000017-M	PHYSICS OF ELECTRICITY AND MAGNETISM	4	4.7 Four Seven
3007826	GENERAL THERMODYNAMICS	4	3.9 Three Nine
3006915	STATISTICS II	4	4.9 Four Nine
3007324	OPERATIONS RESEARCH I	3	4.7 Four Seven
3007309	MATERIALS SCIENCE	3	4.4 Four Four
3007702	INFORMATION SYSTEMS	3	4.7 Four Seven

FIRST ACADEMIC PERIOD OF 2016

CODE	SUBJECT OR ACADEMIC ACTIVITY	CREDITS	GRADE
3007283	Cost Accounting	4	4.2 Four Two
3007327	MANUFACTURING PROCESSES	3	4.3 Four Three
1000020-M	PHYSICS OF OSCILLATIONS, WAVES AND OPTICS	4	5.0 Five Zero
3008912	STRATEGIC MANAGEMENT	3	4.9 Four Nine
3009137	Statistics III	4	4.1 Four One

SECOND ACADEMIC PERIOD OF 2016

CODE	SUBJECT OR ACADEMIC ACTIVITY	CREDITS	GRADE
3007282	FINANCIAL MANAGEMENT	3	4.1 Four One
3007317	INDUSTRIAL HYGIENE AND SAFETY	3	4.9 Four Nine
3007318	PRODUCTION ENGINEERING	4	4.3 Four Three
3007315	MARKETING MANAGEMENT	3	5.0 Five Zero
1000053-M	ENGLISH III AND IV - INTENSIVE	6	AP Approved

FIRST ACADEMIC PERIOD OF 2017

CODE	SUBJECT OR ACADEMIC ACTIVITY	CREDITS	GRADE
3007308	PRODUCTION MANAGEMENT	3	4.7 Four Seven
3007311	SYSTEMS DYNAMICS	3	4.2 Four Two
3007325	OPERATIONS RESEARCH II	3	4.4 Four Four
3007320	INTRODUCTION TO RELIABILITY	3	4.7 Four Seven



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FIRST ACADEMIC PERIOD OF 2017

CODE	SUBJECT OR ACADEMIC ACTIVITY	CREDITS	GRADE
3007313	ERGONOMICS	3	5.0 Five Zero
3007844	ENGINEERING PROJECT SEMINAR I	3	5.0 Five Zero

SECOND ACADEMIC PERIOD OF 2017

CODE	SUBJECT OR ACADEMIC ACTIVITY	CREDITS	GRADE
3007294	PROCESS MANAGEMENT	3	3.9 Three Nine
3007310	STATISTICAL QUALITY CONTROL	3	4.6 Four Six
3007332	LOGISTICS SYSTEMS	3	3.5 Three Five
3007319	INNOVATION AND TECHNOLOGICAL MANAGEMENT	3	4.4 Four Four
3007845	ENGINEERING PROJECT SEMINAR II	3	4.9 Four Nine
3007331	SYSTEMS SIMULATION	3	4.2 Four Two
3008105	Intensive English B1	4	3.6 Three Six
3009693	Conflict, negotiation and peace in Colombia	3	4.1 Four One

FIRST ACADEMIC PERIOD OF 2018

CODE	SUBJECT OR ACADEMIC ACTIVITY	CREDITS	GRADE
3009237	Plant Design	4	3.2 Three Two
3007322	INTRODUCTION TO DECISION ANALYSIS	3	4.4 Four Four
3007329	INDUSTRIAL RELATIONS	4	3.8 Three Eight
3007846	ENGINEERING PROJECT SEMINAR III	4	4.4 Four Four
3008901	GENERAL ACCOUNTING	4	4.0 Four Zero
3009367	University Chair: Ethical Commitment, for a Healthy University	3	4.6 Four Six

SECOND ACADEMIC PERIOD OF 2018

CODE	SUBJECT OR ACADEMIC ACTIVITY	CREDITS	GRADE
3007336	POSTGRADUATE COURSES	6	4.5 Four Five
3007587	Special Academic Practice 3	6	4.0 Four Zero

Number of subjects passed: 54

Credits included in the study plan: 176

Page 3 of 3



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1036658687

Academic average: 4.3 Four Three

Completion of the curriculum: second academic period of 2018

Title awarded: INDUSTRIAL ENGINEER

Graduation certificate No.: 8760

Book: 7

Registration: 8864

Graduation date: August 9, 2019

Diploma No.: 171537

DISTINCTIONS AND INCENTIVES

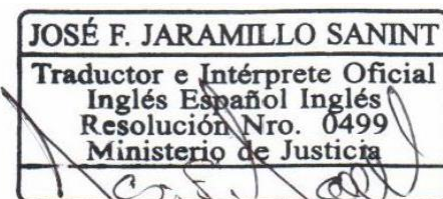
- First academic period of 2017: Exemption from undergraduate tuition fees
- Second academic period of 2017: Exemption from undergraduate tuition fees

This certificate is issued at the request of the interested party in the city of MEDELLÍN, on the first day of November of the year two thousand twenty-three (2023).

Signature
FLOR ANGELA MARULANDA VALENCIA
Faculty Secretary
FACULTY OF MINES

Page 4 of 4

*This translation has been done by JOSE F. JARAMILLO SANINT, official translator and Interpreter for the English-Spanish-English languages according to resolution No. 0499 Issued on April 02, 2004 by the Ministry of the Interior and Justice, Republic of Colombia.
This document is an accurate translation of the original. August 25, 2025*





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1036658687

The grading scale for the subjects is from zero point zero (0.0) to five point zero (5.0) with the minimum passing grade being three point zero (3.0).

Note: A credit is the unit that measures the time required by the student to fully meet the training objectives of each subject and is equivalent to 48 hours of student work in an academic period (Article 6 of CSU Agreement 033 of 2007).

Academic average: weighted average of courses taken (Article 41 of Agreement 008 of 2008 of the CSU). Validation via email: certificados_med@unal.edu.co

Daniela C

Page 5 of 5

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CERTIFIES**

That DIEGO ALEJANDRO ZAPATA ALCARAZ, with ID No. 1036658687, with initial enrollment in the second academic period 2019 in the SPECIALIZATION IN ANALYTICS Study Plan, approved the following subjects or academic activities that add up to 28 credits:

SECOND ACADEMIC PERIOD 2019

CODE	SUBJECT OR ACADEMIC ACTIVITY	CREDITS	GRADE
3008415	CLASSIFICATION AND PATTERN RECOGNITION	4	5.0 Five Zero
3009768	Applied data science	4	4.5 Four Five
3010189	Optimization advances	4	4.8 Four Eight
3010352	Big data analytics	4	5.0 Five Zero

FIRST ACADEMIC PERIOD 2020

CODE	SUBJECT OR ACADEMIC ACTIVITY	CREDITS	GRADE
3009775	Mass database systems	4	4.8 Four Eight
3010021	Decisions under uncertainty in organizations	4	4.9 Four Nine
3010351	Predictive analytics	4	5.0 Five Zero

Number of subjects passed: 7

Final Project: THE PROGRAM DOES NOT REQUIRE A DEGREE PROJECT TITLE

Credits included in the study plan: 28

Academic average: 4.9 Four Nine

Completion of the curriculum: first academic period 2020

Title awarded: ANALYTICS SPECIALIST

Graduation certificate No.: 4236

Book: 3

Registration: 4257

Graduation date: November 6, 2020

Page 1 of 2

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1036658687

Diploma No.: 61618

This certificate is issued at the request of the interested party in the city of MEDELLÍN, on the first day of December of the year two thousand twenty-three (2023).

Signature
FLOR ANGELA MARULANDA VALENCIA
Faculty Secretary
FACULTY OF MINES

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Credit: unit that measures the time required by the student to fully meet the training objectives of each subject and is equivalent to 48 hours of student work in an academic period (Article 6 of agreement 033 of 2007 of the CSU)

Academic average: weighted average of subjects passed (Paragraph of Article 42 of agreement 008 of 2008 of the CSU).

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