



TÉCNICO+
FORMAÇÃO AVANÇADA



Specialisation Course

Lean Six Sigma Black Belt (Virtual Classroom)

Lean and Six Sigma are the most used continuous improvement methodologies by companies, and they are **essential for their growth in the competitive environment of today's economy**. Professionals with **Lean Six Sigma Black Belt certification have essential knowledge** for the successful implementation of sustainable strategies for continuous improvement in the organisation, as they are experts in project optimisation processes. Thus, **the Lean Six Sigma Black Belt certification represents the opportunity** to become an expert in this area, contributing to your professional growth.

This Lean Six Sigma Black Belt training and certification builds on the Green Belt's latent or acquired knowledge to **expand Lean Six Sigma experience and skills, giving you the confidence to take the next step as a continuous improvement expert**. This training is coordinated by **Paulo Peças, Associated Professor at Instituto Superior Técnico**. Besides his involvement, it also includes **Erising, a company specialising in Lean Manufacturing, Six Sigma and Continuous Improvement** in Portugal, and **GameChange, a leader in training and application of these methodologies**, with more than 7000 belts certified worldwide. This edition of the course will be taught remotely, combining e-learning modules with live sessions, allowing you to acquire knowledge anywhere and to have the opportunity to share ideas and experiences with students from different countries. The course is taught in English.

GOALS

- Understanding the fundamental principles of Lean and Six Sigma tools, based on the knowledge and skills acquired in the Green Belt certification, from probability and statistics to building high performing teams;
- Understanding how to manage and improve teams for the application of Lean and Six Sigma logics;
- Developing simple and effective solutions;
- Learning to manage resistance to change and maintain the solutions developed.

TARGET STUDENTS

This course is aimed at service, engineering, and manufacturing professionals who are certified Green Belts or have extensive experience in managing and applying Lean Six Sigma projects, who aspire to or have responsibilities for continuous improvement.



Total Workload: 76h*



Live Sessions:
23 September to
18 November 2022



Live Sessions:
Friday, 09h30/15h30



e-learning modules and Live
Sessions through Zoom



2 600€



3 ECTS

tecnicomais.pt

*58h of e-learning modules and 18h of live sessions

COORDINATION



Paulo Peças | IST

Professor at IST since 1991, in the Industrial Management group of the Department of Mechanical Engineering. Chair in Industry 4.0, The Navigator Company, with special emphasis on Digital Lean. Responsible for the discipline of Production Management of the Master in Mechanical Engineering. Researcher at IDMEC and responsible for several research projects in the area of operational efficiency and sustainability, with national and European companies. Supervision of more than 100 master's and doctoral theses in the area of Lean and Continuous Improvement. More than 20 years of experience in applying Lean and developing new tools. More than 100 international scientific publications.

TRAINERS



Diogo Jorge | ERISING

Master in Mechanical Engineering from Instituto Superior Técnico and Lean Six Sigma Master Black Belt (Bradford, UK). He is co-founder and manager at Erising, developing Lean Six Sigma projects in various organisations and in different sectors, and coordinates various activities in European and national R&D projects, focused on the area of process optimisation. At Instituto Superior Técnico, he is a guest lecturer in the Production Management course and has several publications in international conferences and book chapters, in the field of production systems' efficiency and effectiveness improvement.

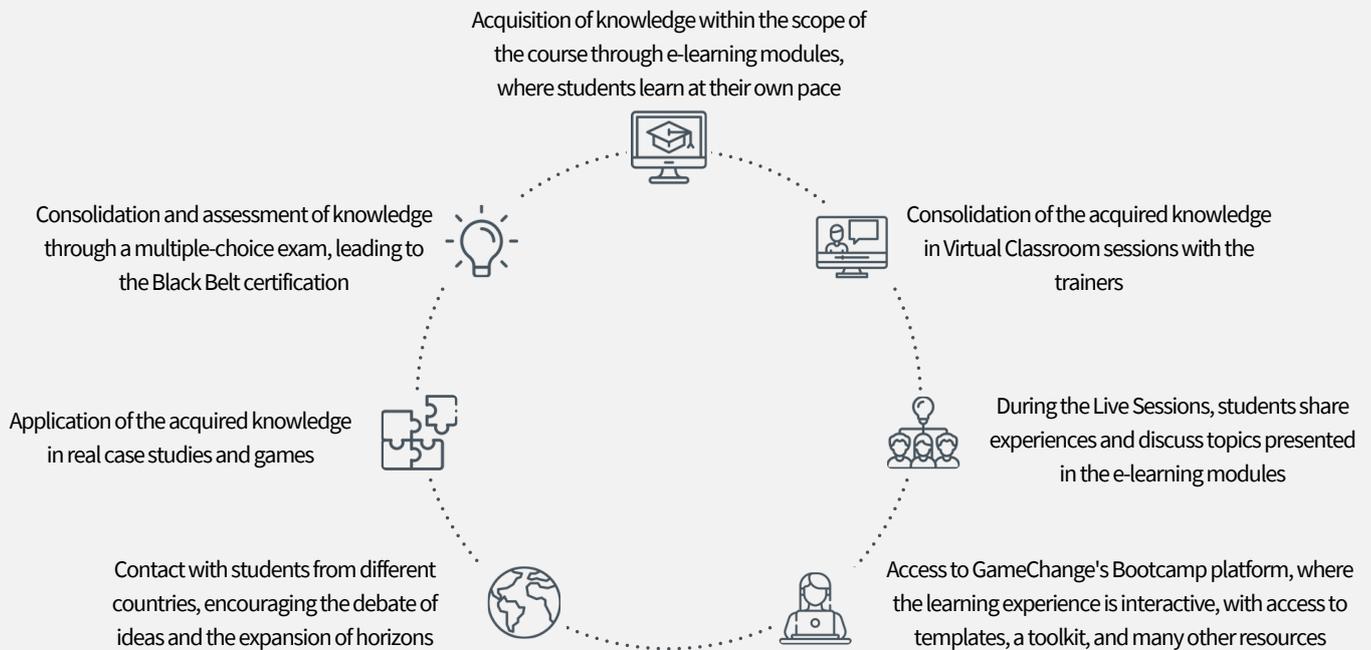


Kamran Zamir | Game-Change

Experience in managing the entire project lifecycle, from planning and scoping through delivery. GE and Honeywell Certified Master Black Belt in Process Variability Reduction (DMAIC), Process Waste Reduction (LEAN) and Growth Through Innovation Principles (DFSS). He is a Lean Six Sigma Expert and Trainer with a strong track record in delivering market penetration, business growth and turn-round strategies, having over 20 years of experience across a broad range of industries and business dynamics in the UK, Jersey (Channel Islands), Europe and Middle East.

METHODOLOGY AND EVALUATION

This course consists of 6 e-learning modules, with interim live sessions, where topics presented throughout the course are discussed, with the support of experienced and qualified trainers.



Throughout the course, you will acquire knowledge in the different modules and the assessment consists of taking a Black Belt certification exam, at the end of the course, based on multiple choice questions. This exam follows the standards of the main references in the Lean Six Sigma philosophy, General Electric and Honeywell.

The approval condition for the Black Belt Certification and Specialisation Course Diploma is to obtain more than 70% in the classification of the exam to be carried out at the end of the modules.

The student can choose to take this course in the following formats (the value is the same for any of the formats):

- **Specialisation Course:** with assessment and award of 3 ECTS credits. At the end, the trainee will receive a Specialisation Course Diploma.
- **Training Course:** without assessment and without attribution of ECTS credits, requiring 85% attendance. At the end, the trainee will receive a Training Course Certificate.

PROGRAMME

1. Lean Six Sigma Fundamentals

e-learning

- Green Belt refresher training
- Finding and Solving problems in the organisation.

Live Sessions 1 and 2

Kamran Zamir

23 September - Friday, 09h30/15h30

- Discussion of topics presented throughout the online preparation modules.

2. Define

e-learning

- Define the Problem, Customer needs and Process:
 - Project Management for projects;
 - Project Management basics;
 - Management and Planning Tools;
 - Business Results for Projects;
 - Team dynamics and performance.

3. Measure

e-learning

- Diagnose and analyse current state:
 - Sampling and transforming data;
 - Measurement system analysis;
 - Process analysis and documentation, probability and statistics;
 - Collecting and analysing data;
 - Process capability and performance.

Live Sessions 3 and 4

Kamran Zamir

21 October - Friday, 09h30/15h30

- Discussion of topics presented throughout the online preparation modules.

4. Analyse

e-learning

- Identify and Verify root causes:
 - Exploratory data analysis;
 - Data analysis in minitab and excel;
 - Hypothesis testing with normal data and with non-normal data;
 - Correlation, regression and multi-variable studies.

5. Improve

e-learning

- Develop future state and implement:
 - Lean enterprise management;
 - Building high performance teams;
 - Solutions thinking and innovation;
 - Decision matrices;
 - Change management.

Live Sessions 5 and 6

Eng. Diogo Jorge, Prof. Paulo Peças and Kamran Zamir

18 November - Friday, 09h30/15h30

- Discussion of topics presented throughout the online preparation modules.

6. Control

e-learning

- Sustain and control the improvements:
 - Process management;
 - Design for six sigma;
 - Statistical process control;
 - Selection and application of control charts;
 - Control plan;
 - Project closure.

STATISTICS



*The product cycle time, from ordering to delivery to the customer, can be reduced by **50% of the total time**. **The customer gets their product in less time!***

Paulo Peças, Professor at IST



***People involvement in the continuous improvement process** is the aim and the outcome of that process.*

Erising



Early adopters of Lean Six Sigma, namely Motorola, GE, Honeywell and Toyota, follow analytical rigor and "learning by doing" standards in their training processes, necessary to ensure that students gain the practical skills necessary to achieve an excellent level in Lean Six Sigma Certification. Our certification process follows these same principles.

GameChange



*Lean management can be used to **improve the efficiency of any type of company**. When implemented correctly, **a lean culture encourages all parts of the organisation to become "problem solvers", contributing to the continuous improvement of the company.***

Forbes



*In one of GE's areas, service teams **used lean to reduce cycle time by more than 30%**. This meant that the time plants were closed was reduced, translating into **fewer interruptions for customers**, who were able to get back to producing and selling energy more quickly, **bringing more productivity benefits to GE.***

General Electric

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FORMAÇÃO AVANÇADA



Specialisation Course

Lean Six Sigma Black Belt (Face-to-face)

Lean and Six Sigma are the most used continuous improvement methodologies by companies, and they are **essential for their growth in the competitive environment of today's economy**. Professionals with **Lean Six Sigma Black Belt certification have essential knowledge** for the successful implementation of sustainable strategies for continuous improvement in the organisation, as they are experts in project optimisation processes. Thus, **the Lean Six Sigma Black Belt certification represents the opportunity** to become an expert in this area, contributing to your professional growth.

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GOALS

- Understanding the fundamental principles of Lean and Six Sigma tools, based on the knowledge and skills acquired in the Green Belt certification, from probability and statistics to building high performing teams;
- Understanding how to manage and improve teams for the application of Lean and Six Sigma logics;
- Developing simple and effective solutions;
- Learning to manage resistance to change and maintain the solutions developed.

TARGET STUDENTS

This course is aimed at service, engineering, and manufacturing professionals who are certified Green Belts or have extensive experience in managing and applying Lean Six Sigma projects, who aspire to or have responsibilities for continuous improvement.



Total Workload: 54h



21 to 25 November 2022



Alameda Campus



Monday to Friday, 09h00/18h30



3 200€



3 ECTS

COORDINATION



Paulo Peças | IST

Professor at IST since 1991, in the Industrial Management group of the Department of Mechanical Engineering. Chair in Industry 4.0, The Navigator Company, with special emphasis on Digital Lean. Responsible for the discipline of Production Management of the Master in Mechanical Engineering. Researcher at IDMEC and responsible for several research projects in the area of operational efficiency and sustainability, with national and European companies. Supervision of more than 50 master's and doctoral theses in the area of Lean and Continuous Improvement. More than 20 years of experience in applying Lean and developing new tools. More than 100 international scientific publications.

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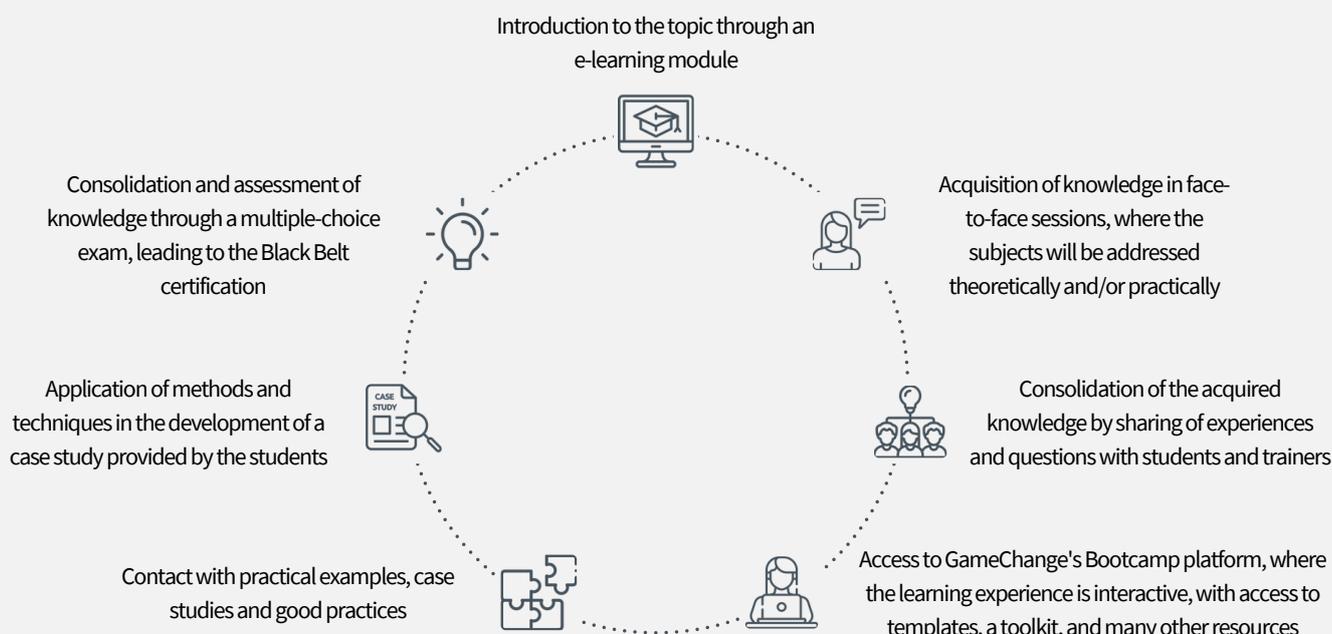


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METHODOLOGY AND EVALUATION

This course consists of 1 e-learning module, followed by an intensive week of face-to-face sessions where teaching is practical and interactive.



Throughout the course, you will acquire knowledge in the different modules and the assessment consists of taking a Black Belt certification exam, at the end of the course, based on multiple choice questions. This exam follows the standards of the main references in the Lean Six Sigma philosophy, General Electric and Honeywell.

The approval conditions for the Black Belt Certification and Specialisation Course Diploma are to obtain more than 70% in the classification of the exam to be carried out at the end of the modules.

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PROGRAMME

1. Lean Six Sigma Fundamentals

e-learning

- Green Belt refresher training
- Finding and Solving problems in the organisation.

2. Define

Kamran Zamir

21 November - Monday, 09h00/18h30

- Define the Problem, Customer needs and Process:
 - Project Management for projects;
 - Project Management basics;
 - Management and Planning Tools;
 - Business Results for Projects;
 - Team dynamics and performance.

3. Measure

Kamran Zamir

22 November - Tuesday, 09h00/18h30

- Diagnose and analyse current state:
 - Sampling and transforming data;
 - Measurement system analysis;
 - Process analysis and documentation, probability and statistics;
 - Collecting and analysing data;
 - Process capability and performance.

4. Analyse

Kamran Zamir

23 November - Wednesday, 09h00/18h30

- Identify and Verify root causes:
 - Exploratory data analysis;
 - Data analysis in minitab and excel;
 - Hypothesis testing with normal data and with non-normal data;
 - Correlation, regression and multi-variable studies.

5. Improve

Eng. Diogo Jorge and Kamran Zamir

24 November - Thursday, 09h00/18h30

- Develop future state and implement:
 - Lean enterprise management;
 - Building high performance teams;
 - Solutions thinking and innovation;
 - Decision matrices;
 - Change management.

6. Control

Prof. Paulo Peças and Kamran Zamir

25 November - Friday, 09h00/18h30

- Sustain and control the improvements:
 - Process management;
 - Design for six sigma;
 - Statistical process control;
 - Selection and application of control charts;
 - Control plan;
 - Project closure.

STATISTICS



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