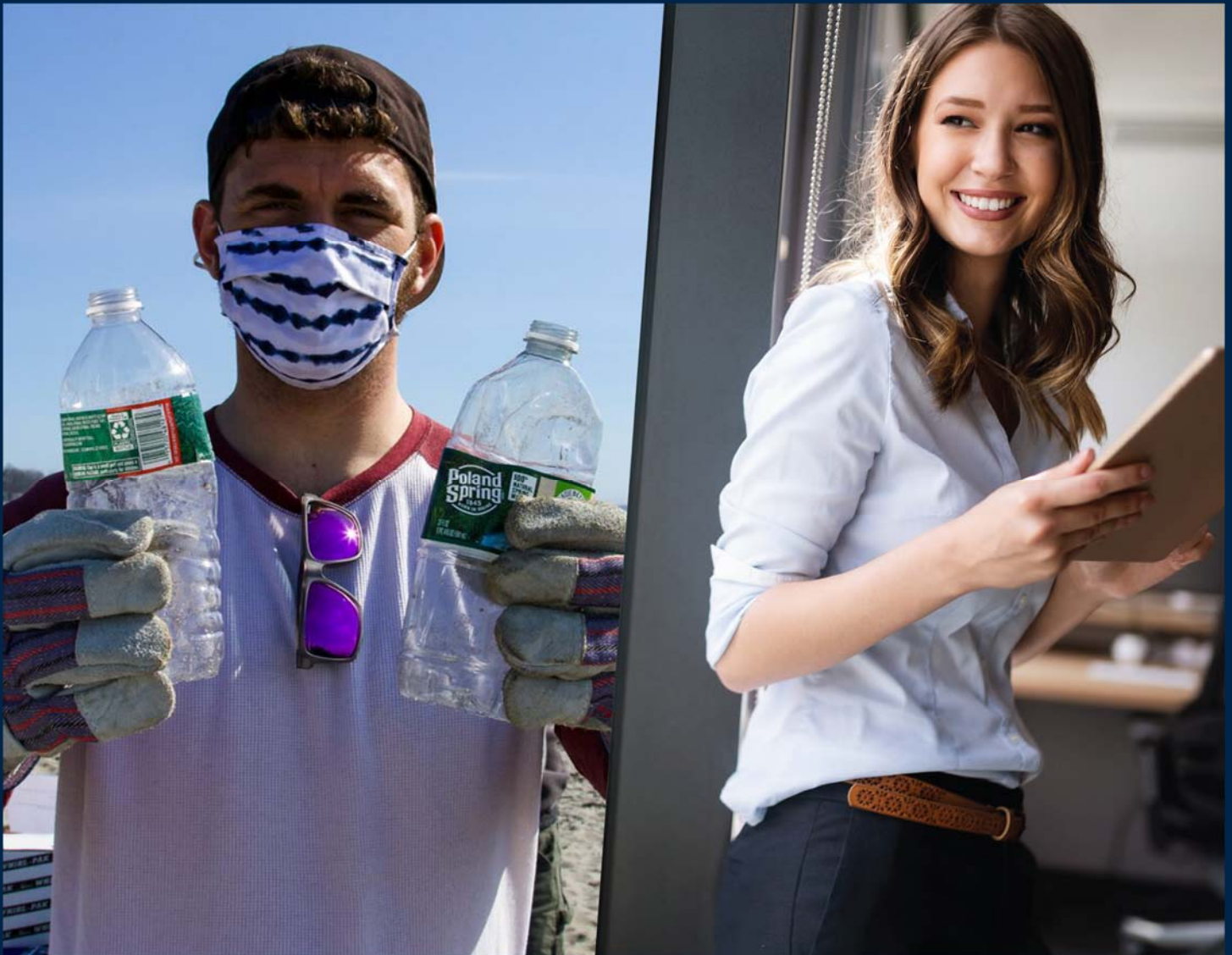


Everyone - Everywhere

Lean Six Sigma

Yellow and Green Belt Certification



Our Mission:

We facilitate our participants' knowledge, skills, and personal development. Our aim is to develop **highly effective, innovative and responsible decision-makers** who foster the **transformation of organizations and society**.

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Lean Six Sigma with us?

TUM Lean Six Sigma courses develop your competence to improve business processes in production and services. Theory and practice are aligned with ASQ¹⁾ standards and ISSSP²⁾ recommendations. With four international awards, they are among the most successful courses for massive and blended learning.

Lean - Six Sigma - theory - practice - 24/7 - worldwide - lifelong – learning

The three courses of our **Yellow Belt Program** include 30 hrs. video lectures, 500 interactive exercises, homework problems, and individual performance assessments. Our **Yellow Belt certificate** meets and exceeds the ASQ¹⁾ requirements for **Green Belts** and offer the fundamentals for our **Green Belt Certification**.

Our **Green Belt Certification course** requires the identification, implementation and evaluation of an individual **certification project** - as recommended by the ISSSP²⁾. We offer three alternative certification paths - with individual business-projects **for employees** and our predefined sustainability-project **for students**.

Each **project** will be **digitally guided** by our learning material, and must be **documented** in a story-book. Projects will also be **personally guided** in weekly online lectures, individual project reviews, and coaching.

Since 2015 our courses have overall attracted **300k learners - 25% female - in 180 countries**. Two of our four MOOCs belong to the most successful business courses - with worldwide positive evaluations. Our learners especially like that **we take care of individual needs**. And the complete Lean Six Sigma Certification program received four awards in 2020 and 2021 from IELA and QS Reimagine Education.



1) American Society for Quality
2) International Society of Six Sigma Professionals

Lean Six Sigma Courses and Programs

The **Yellow Belt Program** includes **three courses**: **1. Define & Measure**, **2. Analyze, Improve & Control** and **3. Lean Production**, with 30 hrs. video lectures, 500 interactive exercises and homework problems, presented in familiar, culture free and transferable mini-projects and case studies.

Teaching objectives address the competence levels: *remember*, *understand*, and *apply*. They are **aligned with the ASQ¹⁾ requirements for their Green Belt certificate**. It is offered on the E-Learning platform [edX](#).

This **Yellow Belt certificate** is the **prerequisite** for our **Green Belt certification**.

Yellow Belt Program : 3 MOOCs		4 Lean Six Sigma Green Belt Certification Project		TUM Lean Six Sigma Green Belt		
Project Paths	suited for	offered by				
1 Six Sigma - Define & - Measure 	TUM Lean Six Sigma Yellow Belt	4 Lean Six Sigma Green Belt Certification Project 				
2 Six Sigma - Analyze, - Improve & - Control 		Business-Project medium	Employees			
3 Lean Production Theory + Practice 		Business-Project small	Employees			
	Sustainability-Project 	Students Job-Seekers				
Green Belt Program : 4 MOOCs + 3 optional Project Paths + Digital Guidance + Personal Guidance						

For our Lean Six Sigma Green Belt Certification you can choose between three paths:

- For **employees** we offer our **Certification** by individual **Business-Projects**. Both options - **medium** and **small** - offer the implementation of a specific medium or small improvement project.
- For **students and job-seekers** we offer a predefined **Sustainability-Project** on *Environmental Littering*. This topic follows the United Nations Sustainability Goals #11 and #12. It must be adapted to the local conditions and can be implemented by everyone and everywhere.

Teaching objectives address the competence levels: *apply*, *analyse*, and *evaluate*. With this implementation of an individual project we follow the **recommendation of the ISSSP²⁾ for Green Belt certification**.

1) American Society for Quality

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Projects for Employees, Students, and Job-Seekers

	Business-Project medium	Business-Project small	Sustainability-Project UN SUSTAINABLE DEVELOPMENT GOALS
Prerequisite	Lean Six Sigma Yellow Belt Certificate		
Suited for	Employees	Employees	Students & Job-Seekers
Requires Support from Sponsor (Management) of company/ organisation	✓	recommended	recommended
Black Belt/ Master Black Belt of company/ organisation	./.	recommended	./.
Project			
Topic	individually defined	individually defined	Explore and reduce environmental littering in selected spots of your hometown
Size/ Complexity	medium	small	small
Impact/ Financial Benefit	important	less important	not important
Course content and project guidance			
ASQ & ISSSP conform content + TUM developments	✓	✓	✓
Course material videos, ebook, software	✓	✓	✓
Digital guidance via tool-sequence, project-story-book	✓	✓	✓
Lectures, Presentations, Q&A weekly via zoom	✓	✓	✓
Individual project reviews via project-story-book for each phase	✓	✓	✓
Confidentiality assured by non-disclosure agreement	✓	✓	✓
Individual project coaching on demand via zoom	up to 8 hrs.	up to 3 hrs.	./.
Benefits			
Choose this project	- for critical outputs in production and service - with significant process improvements and - financial benefits that exceed the course fee	- less critical outputs in production and service - primarily orientend on acquiring the competence - financial benefits are of secondary importance	- for students and job-seekers - primarily orientend on acquiring the competence - benefits are oriented to the environment
Offer			
Degree	Lean Six Sigma Green Belt Certification		
Fee	2.500 €	1.800 € 1900 € (can vary)	566 € (can vary)
Register at	TUM	TUM edX	edX

Business-Project medium: Employees of companies who want to acquire the methodological competence and achieve a significant improvements with financial benefits implement this individually defined certification project, steered by a company project sponsor. We support this project with phase reviews, weekly online lectures and up to 8 hrs. of individual or team coaching. [Register](#)

Business-Project small: Employees of companies who primarily want to acquire methodological competence with the certification project whose impact on the company processes as well as the financial benefits are of secondary importance. We support this project with phase reviews, weekly online lectures and up to 3 hrs. of individual or team coaching. [Register](#)

Standard-Project: Students and job-seekers implement our predefined certification project on Environmental Littering (UNSDG #11/ 12). We support the project with phase reviews and weekly online lectures. [Register](#)

Transfer the Project Scenario to your Situation

The Green Belt course material is based on our **scenario: *Cookie du Chef***. Within this scenario we demonstrate the **identification, implementation, evaluation, and documentation** of a Lean Six Sigma project.

In this scenario, we bake cookies. These outputs have quality, availability, and consumption problems that lead to customer dissatisfaction and increase the costs of non-conformance. **Problems in the process and their effects on customers and the company are the starting point for any Lean Six Sigma project.**

The transfer to your project therefore also starts with the questions: **What is the *cookie* in your process, i.e. which (intermediate) product or service are you concerned with?** and **Which deviations in the quality, availability and consumption of this output lead to dissatisfaction and increase costs?**



After this identification of a suitable project topic (**DEFINE**), the triggers of the problems are searched in the inputs, methods, resources and activities of the process and related data are collected (**MEASURE**). Statistical tests on cause-problem hypotheses lead to the root causes of the problems (**ANALYSE**). These root causes are the interfaces for solutions (**IMPROVE**). After their implementation, data are collected again, before-after differences are statistically tested, and financial benefits are evaluated (**Control**).

Our **Cookie du Chef** scenario demonstrates all steps for identification, implementation and evaluation of a Lean Six Sigma project - **easy-to-understand, tool-based** - and **facilitates the transfer to your situation.**

We guide this transfer digitally by our course material and personally by lectures, reviews, and coaching.

Digital Guidance

The combination of our course material - videos, documents, software, templates, control questions, project tasks, with personal guidance - open lectures, and individual coaching offers a **blended learning** experience to support Green Belt candidates in **transferring from the scenario to their own project**.

The course material includes:

Videos: Animated content of the project scenario (43 lessons, 6hrs.)

eBook: Six Sigma Green Belt Certification Project - mirroring the videos (259 pp.)

sigmaGuide: Software guide for Six Sigma projects (32 tools and charts along the DMAIC)

Project-Story-Book: PowerPoint template for project documentation (60 slides)

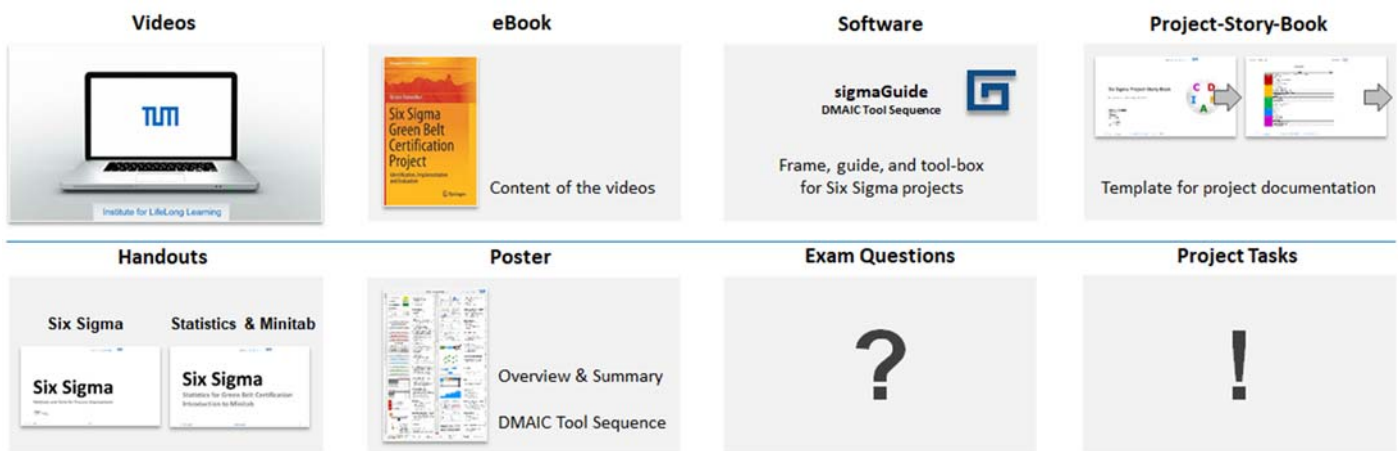
Handout Six Sigma: All figures and tables of the videos/ eBook (90 slides)

Handout Statistics: Statistics with Minitab (140 slides)

Project Poster: Overview guide with the DMAIC phases and related tools

Control Questions: Examination of the Six Sigma related course objectives

Project Tasks: Concretize the transfer from the scenario to the own project.

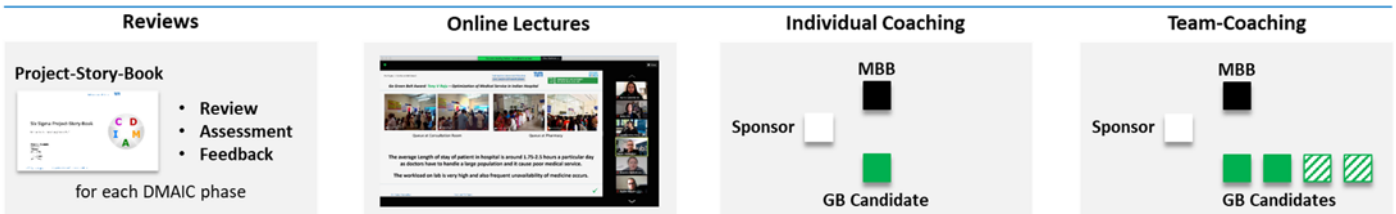


There are different views in literature, organisations, and practice on the purpose of the DMAIC phases, the tasks, on the selection and on the sequence of tools. From the perspective of empirical research, we adjusted the scope, purpose, and tasks of the phases and ordered the associated tools in the necessary sequence. The inputs and outputs of the tools were formalized and parameterized. The result is a sequence of 30 tools developed in **sigmaGuide**. This software provides a chronological, seamless sequence of tools, from the identification of a project topic to the control of the project success, each with defined inputs, activities, and outputs, as an intermediate result in the project and as data for the following tool. **sigmaGuide allows to run a project as a standardized process.**

The results of each tool are to be transferred to the **Project-Story-Book** template and discussed. In doing so, the learner demonstrates with interpretations and decisions how well the transfer to the own project has succeeded. This performance record is a suitable basis for reviews and certification.

Personal Guidance

About 10% of our Green Belt candidates can successfully implement their project nearly without personal guidance - based solely on the course material. However, depending on the range of possible practice projects, their complexity, dynamics, and opacity additional learner guidance is required.



The personal learner guidance includes:

Project-Reviews: Review, assessment, and feedback for each DMAIC phase

Online-Lectures: Series of 16 lectures with theory and practice, presentations, Q&A's in weekly open [zoom lectures](#) on Tuesdays, at 8:00UTC and 15:00 UTC - Passcode: 122362

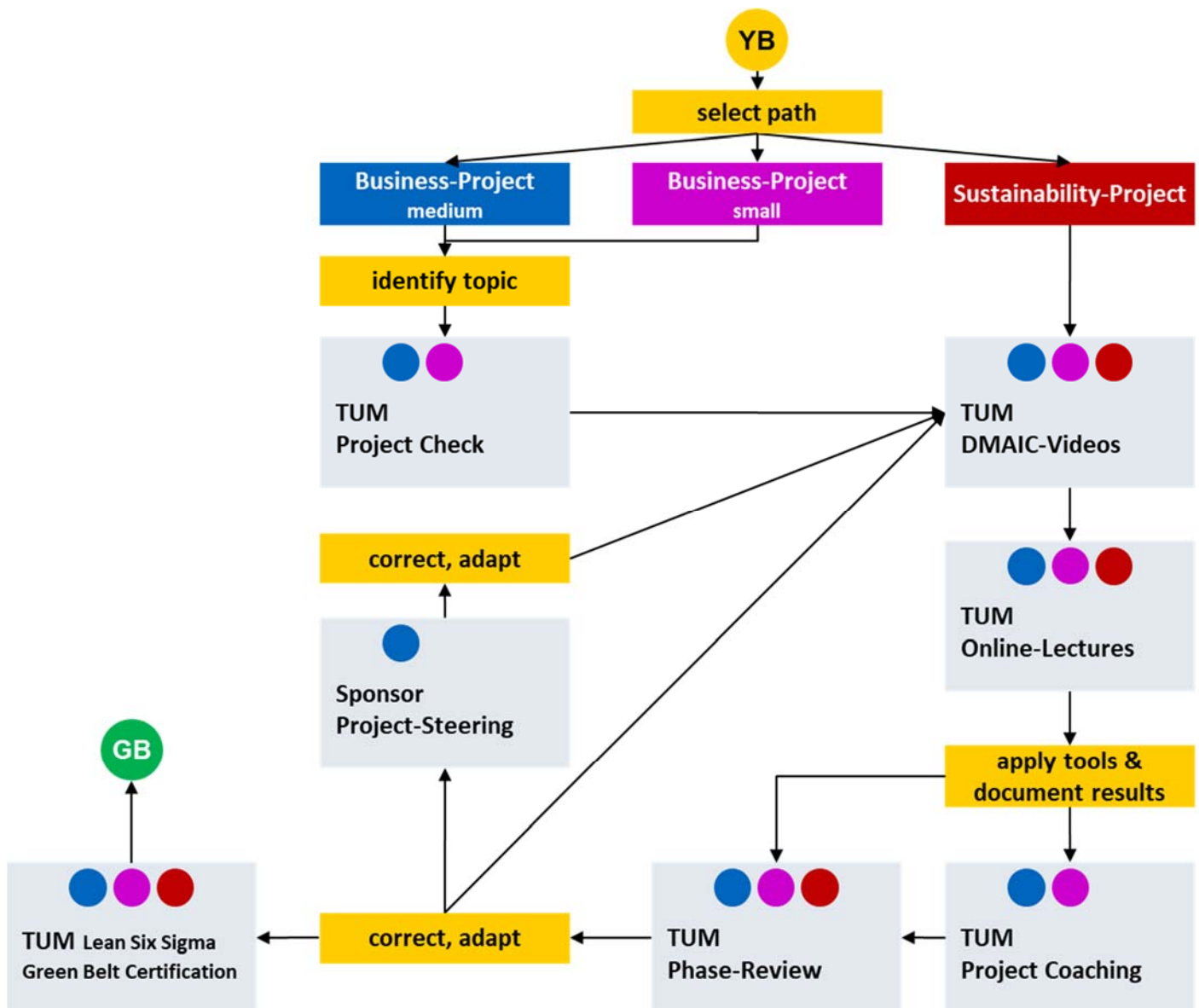
Individual Coaching: Business-Projects >> medium: up to 8 hrs. >> small: up to 3 hrs.

or
Team-Coaching: Possible, for 2-4 learners, working on different aspects of the same project

Four Requirements, three Projects, one Certification

The requirements for our TUM Lean Six Sigma Green Belt Certification are:

- Earn our TUM Lean Six Sigma **Yellow Belt Certificate**
- Attend a complete series of our **Online-Lectures**
- **Apply** the complete **DMAIC method** and related **tools** in an individual project
- **Document** the individual project in our **Project-Story-Book** framework



The paths of the three projects lead to the same TUM Lean Six Sigma Certification. They differ in the type and scope of the benefits and the degree of our support. This way, we ensure that the teaching objectives are achieved and the respective project is successfully completed. With our 25 years of Lean Six Sigma certifications in the classroom, including 8 years in digital learning, we address motivated learners who want to make a difference.

Lean and Six Sigma - Two Sides of a Coin

Lean and Six Sigma are management systems to reduce costs and increase customer satisfaction by improving the creation of products and services.

What is Lean?

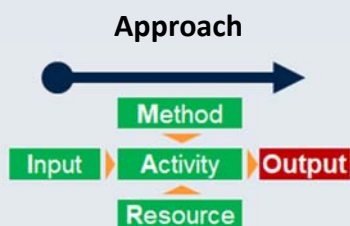
Lean is a concept and the ratio of value and waste in processes - applicable in the workplace and the entire organization

Lean combines scientific principles and common sense in rules and procedures to **continuously eliminate all waste and losses**, related to consumption of inputs and resources, bad practices, and poorly coordinated activities

Lean programs serve to **increase the value added of all processes** in an organization

Lean supports sustainable thinking

Lean is like a general fitness program aiming to improve the value/ waste ratio thus increasing the efficiency of a process



What is Six Sigma?

Six Sigma means **problem solving**, methodically and organizationally structured by the **DMAIC** phases of a **project**

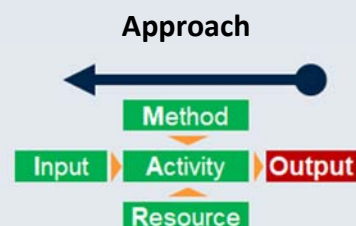
Each phase includes qualitative and statistical tools serving to **Define** the problem, to **Measure** the problem and its potential causes, to test corresponding hypotheses and **Analyse** the root causes, eliminate them to **Improve** the outputs and to finally **Control** the sustainability of the success

Six Sigma programs coordinate the **selection, implementation, and evaluation of projects** in an organization

Six Sigma supports decisions

The sigma level indicates the process performance

Six Sigma is like a specific medical intervention aiming to solve a specific problem of the output thus increasing the effectiveness of a process



[see Video 43 Lean vs Six-Sigma - Comparison of Characteristics](#)

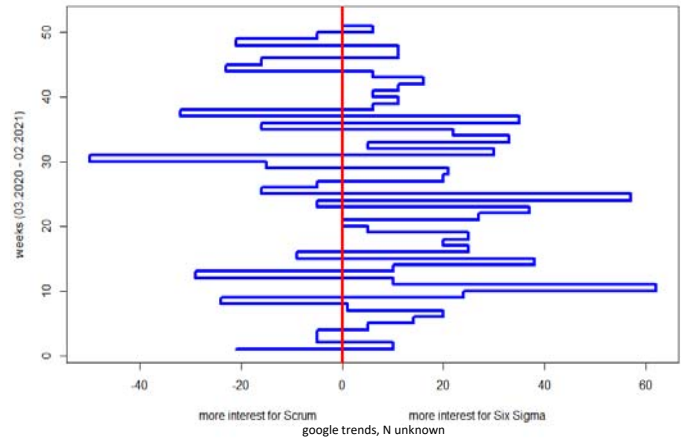
Lean + Six Sigma = Efficiency + Effectivity

Scrum vs. Six Sigma - Mirror Images

The **Scrum Master** certification is sometimes considered as an alternative to **Green Belt** certification.

The decision is of course strongly dependent on the respective career plans, the personal strengths and the requirements of the market.

Interest for Scrum vs. Six Sigma



Our adhoc analysis shows: The public interest in both business improvement approaches is similar. The keyword **Six Sigma Training** is searched slightly but significantly more often than **Scrum Training**.

Our comparison of both approaches shows:

Scrum and Six Sigma are mirror images in content and purpose.

Six Sigma	Scrum
<ul style="list-style-type: none"> integrates qualitative and quantitative methods, and tools to sustainably improve the results of creation processes in service and production by simply structured and organized projects 	<ul style="list-style-type: none"> integrates agile directives, and principles to incrementally improve the results of development projects in (software) development by simply structured and organized processes

If you

- are annoyed by waste and driven by perfection,
- feel attracted by complex and opaque problems,
- want to apply scientifically based methods and tools to problem solving and
- combine results from statistical analyses with expert opinions for root cause analysis

then Lean Six Sigma is a good choice for you.

Course Authors



Prof. Dr. Holly Ott

Professor Production Management
Technical University of Applied Sciences
Rosenheim
Senior Lecturer Production and Supply
Chain Management
Technical University of Munich



Dr. Reiner Hutwelker

Master Black Belt
Senior Lecturer
Institute for LifeLong Learning
Technical University of Munich



Prof. Dr. Martin Grunow

Head of Production and Supply Chain
Management Group
TUM School of Management
Technical University of Munich

Course Management

Interested in Sustainability-Projects for Students and Job-Seekers?

Answers to further questions can be found in the [course description](#) and the related FAQ's.

Interested in Business-Projects for Employees?

For our Business-Projects we offer and recommend a 1h zoom session with our Master Black Belt before the course starts. In this free kick-off for Belt candidates and project Sponsors, we will discuss

- identification and suitability of project topics,
- our approach and support, and
- common steering of the project

Register for a free consultation [here](#).

Questions left?

Get in touch with our dedicated program managers and share your wishes.

We are happy to find the right answers for you and offer our consultation free of charge.



Vesna Gajic

Program Manager
+49.89.289.26744
[Vesna Gajic](#)



Konstantina Koumpouli

Digital Learning Manager
+49.89.289.28474
[Konstantina Koumpouli](#)