University of Colorado Boulder | SIEMENS

Sustainable and Resilient Operations and Supply Chains Specialization

Sustainable Operations and Supply Chain Management. Learn the skills required for sustainable operations and supply chain management.

Instructor: Christy Bozic, PhD, PMP

Enroll for free
Starts Dec 2

Included with coursera PLUS • Learn more

3 course series
Get in-depth knowledge of a subject

4.7 ★
(16 reviews)

Beginner level
Recommended experience

4 weeks to complete
at 10 hours a week

Flexible schedule
Learn at your own pace

What you'll learn

- ✓ Analyze the benefits and challenges of emerging technologies on sustainable production.
- ✓ Evaluate tools used to measure and communicate environmental performance and social impacts of a company's operations and supply chain.
- ✓ Explain the key concepts of sustainable supply chain management and its role in achieving ESG goals.
- ✓ Develop strategies to build and manage ethical partnerships with suppliers, emphasizing collaboration and alignment with sustainability objectives.

Skills you'll gain

Sustainable Business | Environmental Engineering | Sustainability Standards | Logistics Management | Manufacturing Operations | Sustainable Design | Business Ethics | Corporate Sustainability | Environmental Social And Corporate Governance (ESG) | Procurement | Sustainable Development | Product Design | Supply Management | Supply Chain | Sustainable Technologies | Supplier Relationship Management | Sustainability Reporting | Supply Chain Management | Labor Compliance | Operations Management | View less skills

Details to know

Shareable certificate
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Taught in English
2 languages available

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Advance your subject-matter expertise

- Learn in-demand skills from university and industry experts
- Master a subject or tool with hands-on projects
- Develop a deep understanding of key concepts
- Earn a career certificate from University of Colorado Boulder

Specialization - 3 course series

In a world where environmental, social, and governance (ESG) considerations are increasingly central to business success, companies face growing pressure to innovate and adapt. The Sustainable and Resilient Operations and Supply Chains Specialization, developed in partnership with Siemens Digital Industries Software, equips professionals with the knowledge and tools to lead in a dynamic landscape.

This three-course specialization explores the principles and practices of sustainable operations and supply chain management. From implementing circular economy strategies to reducing carbon footprints, each course emphasizes real-world applications, emerging technologies like digital twins and the industrial metaverse, and frameworks such as the Global Reporting Initiative (GRI) and the United Nations Sustainable Development Goals (SDGs).

You will explore how to design circular products, develop sustainable supply chain strategies, and foster ethical labor practices. Additionally, the specialization highlights effective communication of sustainability initiatives, the use of lifecycle assessment tools, and strategies for sustainable procurement and supplier collaboration.

Whether you are an aspiring leader in operations or supply chain management or a seasoned professional seeking to enhance your expertise, this specialization provides actionable insights to drive sustainability and resilience in today's business environment.

Applied Learning Project

Learners work on projects throughout the specialization to apply the concepts covered in each course. Through case studies, peer discussions, and practical exercises, you will develop the skills needed to advance corporate responsibility, reduce environmental impact, and build resilient global supply chains.

"Design for the Circular Economy" microcredential and graduate certificate are developed around the educational goals of providing technical, business, and leadership knowledge and skills that inspire the transformation towards a more circular economy. This includes gaining technical knowledge to apply circular economy principles in product design, minimizing waste and maximizing impact; developing business acumen to implement innovative circular economic models that prioritize sustainability and resilience; and acquiring leadership strategies to communicate effectively and inspire change within an organization.

Read less

Sustainable and Resilient Operations Management

Course 1 • 14 hours

Course details

What you'll learn

- ✓ Identify the principles and concepts of sustainable operations management.
- ✓ Apply techniques to reduce the environmental impact of products.
- ✓ Apply tools used in designing circular facilities.
- ✓ Analyze the benefits and challenges of emerging technologies on sustainable production.

Skills you'll gain

Sustainable Design | Sustainable Technologies | Emerging Technologies | Environmental Resource Management | Industrial Engineering | Sustainable Business | Waste Minimization | Product Design | Digital Transformation | Manufacturing Operations | Environmental Engineering | Operations Management

Corporate Sustainability | Systems Thinking | Climate Change Mitigation | Business Leadership

Developing and Managing Sustainable Supply Chains

Course 2 • 21 hours

Course details

What you'll learn

- ✓ Explain the key concepts of sustainable supply chain management and its role in achieving ESG goals.
- ✓ Identify and analyze different types of emissions and their sources in supply chain activities.
- ✓ Research and analyze a company's carbon reduction initiatives in its supply chain.
- ✓ Demonstrate understanding of circular supply chain models.

Skills you'll gain

Supply Chain Management | Corporate Sustainability | Sustainable Business | Environmental Social And Corporate Governance (ESG) | Sustainable Development | Supply Chain | Logistics Management | Business Technologies | Waste Minimization | Climate Change Mitigation | Case Studies | Transportation Operations | Innovation

Impacts of Sustainable Operations and Supply Chains

Course 3 • 22 hours

Course details

What you'll learn

- ✓ Analyze Corporate Social Responsibility (CSR) and Environmental, Social, and Governance (ESG) frameworks to develop sustainable business strategies.
- ✓ Evaluate tools used to measure and communicate environmental performance and impacts.
- ✓ Develop actionable strategies to ensure compliance with international labor standards, uphold human rights and promote ethical labor practices.
- ✓ Develop strategies to foster supplier partnerships that prioritize ethical sourcing, transparency, and shared sustainability goals.

Skills you'll gain

Corporate Sustainability | Ethical Standards And Conduct | Supplier Relationship Management | Environmental Social And Corporate Governance (ESG) | Labor Compliance | Sustainability Reporting | Sustainable Business | Procurement | Sustainability Standards | Compliance Management | Business Ethics | Waste Minimization | Stakeholder Engagement | Product Lifecycle Management | Leadership | Sustainable Development | Supply Management

Earn a career certificate

Add this credential to your LinkedIn profile, resume, or CV. Share it on social media and in your performance review.

Build toward a degree

This Specialization is part of the following degree program(s) offered by University of Colorado Boulder. If you are admitted and enroll, your completed coursework may count toward your degree learning and your progress can transfer with you.[1]

View eligible degrees

Instructor

Christy Bozic, PhD, PMP
University of Colorado Boulder
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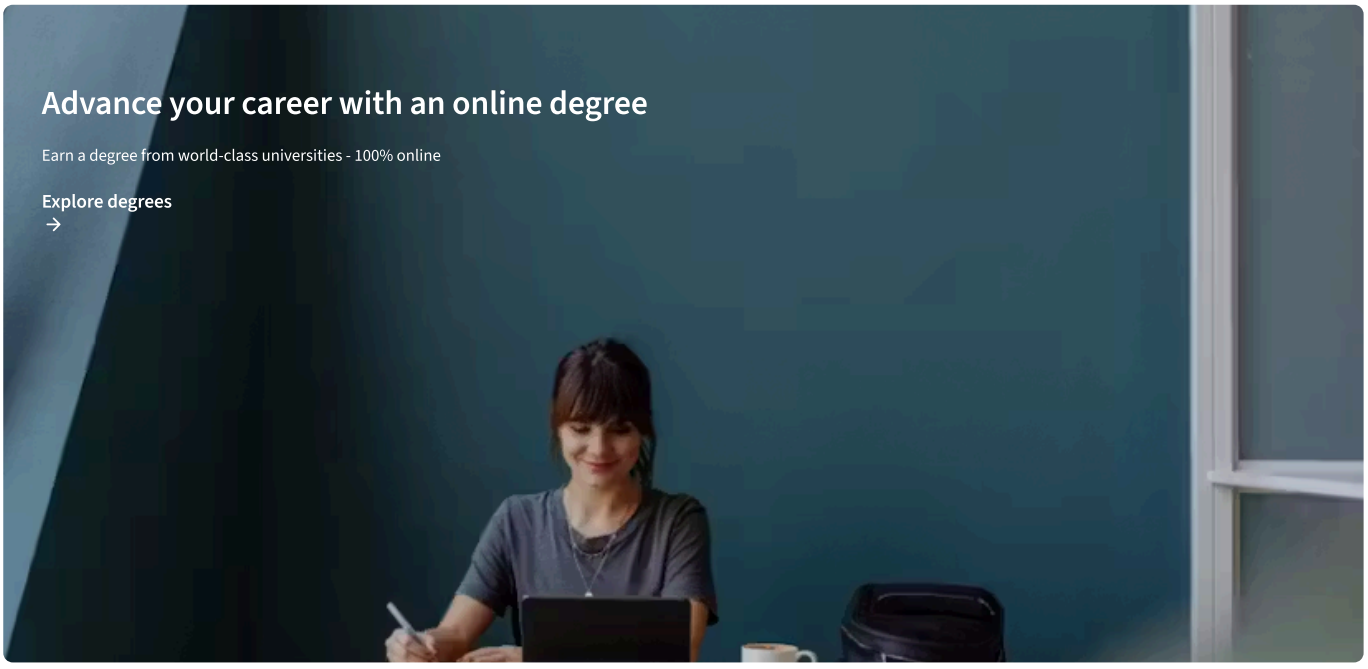

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Frequently asked questions

Is this course really 100% online? Do I need to attend any classes in person?

This course is completely online, so there's no need to show up to a classroom in person. You can access your lectures, readings and assignments anytime and anywhere via the web or your mobile device.

Can I just enroll in a single course?

Yes! To get started, click the course card that interests you and enroll. You can enroll and complete the course to earn a shareable certificate. When you subscribe to a course that is part of a Specialization, you're automatically subscribed to the full Specialization. Visit your learner dashboard to track your progress.

Is financial aid available?

Yes. In select learning programs, you can apply for financial aid or a scholarship if you can't afford the enrollment fee. If fin aid or scholarship is available for your learning program selection, you'll find a link to apply on the description page.

Can I take the course for free?

Will I earn university credit for completing the Specialization?

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More questions

Visit the learner help center

Financial aid available, learn more

Enroll for free
Starts Dec 2

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