



**ES/EC/IB 343 CIRCULAR ECONOMY: FROM MAKE-TAKE-WASTE TO A VISIONARY SYSTEM
WITHIN PLANETARY BOUNDARIES IN A GLOBAL AND EUROPEAN CONTEXT**
IES Abroad Vienna

DESCRIPTION:

In 2050, we live well, within the planet's ecological limits. Our prosperity and healthy environment stem from an innovative, circular economy where nothing is wasted and where natural resources are managed sustainably, and biodiversity is protected, valued and restored in ways that enhance our society's resilience. Our low-carbon growth has long been decoupled from resource use, setting the pace for a safe and sustainable global society.

This unique course is centered around the concept of Circular Economy that seeks to rebuild capital - whether this is financial, manufactured, human, social or natural - and fully respects the resources and ecological limits of our planet. To ensure sustainable growth, resources have to be used in a smarter, more sustainable way. Many natural resources are finite, an environmentally and economically sustainable way of using them must be found. No longer can we build our future on the linear 'take-make-dispose' model. Underpinned by a transition to renewable energy sources, the circular economy model builds economic, natural, and social capital on 3 principles: design out waste and pollution; keep products and materials in the circle; regenerate natural systems. Further, it represents a systemic shift that builds long-term resilience, generates business and economic opportunities, and provides environmental and societal benefits.

This course will have a special focus on the developments within the European Union, namely the 2018 Circular Economy Package and its underlying strategy and legislations.

This course is as important as valuable for students of ecology and environmental studies with an interest in EU policy affairs and covers following subjects: Economics; Business; Environmental Science; EU Policies.

CREDITS: 3 credits

CONTACT HOURS: 45 hours

LANGUAGE OF INSTRUCTION: English

PREREQUISITES: none

METHOD OF PRESENTATION:

A combination of methods will be applied, including:

- Lectures
- Class discussion of the required readings
- Student presentation of selected case studies
- Activity (Systems Dynamics)
- Field Trip/s
- Guest Speakers

The method of presentation is furthermore based on a team-approach with input from external experts for in-depth knowledge on various topics within the circular economy.

REQUIRED WORK AND FORM OF ASSESSMENT:

- Course Participation - 10%
- Midterm Exam - 30%
- Exploration Diary - 20%
- Final Exam - 40%



Course Participation and Attendance (10%)

Students will be expected to come to class prepared and to participate actively in class.

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| A | <p>Excellent participation</p> <p>The student’s contributions reflect an active reading of the assigned bibliography. Skillfully synthesizes the main ideas of the readings and raises questions about the applications and implications of the material. Demonstrates, through questions and comments, that he or she has been capable of relating the main ideas in the readings to the other information discussed in the course, and with his or her own life experience. The student makes informed judgments about the readings and other ideas discussed in class, providing evidence and reasons. He/she respectfully states his/her reactions about other classmates’ opinions, and is capable of contributing to the inquiry spiral with other questions. The student gets fully involved in the completion of the class activities.</p> |
| B | <p>Very good participation</p> <p>The student’s contributions show that the assigned materials are usually read. Most of the time the main ideas are identified, even though sometimes it seems that applications and implications of the information read were not properly reflected upon. The student is able to construct over others’ contributions, but sometimes seems to interrupt the shared construction to go over tangents. He/she is respectful of others’ ideas. Regularly involved in the activities but occasionally loses concentration or energy.</p> |
| C | <p>Regular participation</p> <p>The participant evidences a regular reading of the bibliography, but in a superficial way. He/she tries to construct over others’ ideas, but commonly provides comments that indicate lack of preparation about the material. Frequently, contributions are shallow or unarticulated with the discussion in hand.</p> |
| F | <p>Insufficient participation</p> <p>Consistently, the participant reads in a shallow way or does not read at all. Does not participate in an informed way, and shows lack of interest in constructing over others’ ideas.</p> |

Mid-term Exam (30% split into paper: 20% and presentation: 10%)

The first part of the midterm exam is a written take-home paper of minimum 1,500 words (font size should be 12pt Times New Roman, double spaced). It must include, at least, 3 citation sources. The second part is a short presentation (visual/oral or oral only) of the findings, i.e. the outcomes of the written take-home paper, presented by the students in class. Details and scheme will be published by the instructor in advance.

Exploration Diary (20%)

Students are requested to keep record about their learnings, experiences and observations. They will be asked to keep an exploration diary by writing down their personal highlights of the course.

This diary has to include classes 1-12 and be handed in before class 14. Minimum requirement is 3,000 words (font size should be 12pt Times New Roman, double spaced).

Details and scheme will be published by the instructor in advance.

Final Exam (40%)

Topics and research questions will be proposed by the instructor in class 14.

Based on classes 1-10 students will create their own circular economy business model for a chosen product or service. They will create a *business canvas* for this chosen product/service based on the ‘cradle-to-cradle’ concept, a sustainable business strategy that mimics the regenerative cycle of nature in which waste is reused. First part of the final paper will be this *business canvas* of minimum 3,000 words (font size should be 12pt Times New Roman, double spaced). Second part will be a presentation of the results of the research in class orally by each student. A visual presentation tool is required (PowerPoint, Prezi, etc.).



Students should learn the terms of various circular economy issues being used in the readings and in the class lectures. Students will get a collection of slides that contains the class lectures (printed copies handed out in class). Therefore, students are expected to attend class regularly and to participate in discussions. Also, students must complete reading assignment before class and come prepared to discuss the material.

Electronic devices (laptop, notebook, mobile phones etc.) can only be used for making notes and for discussion of the readings.

LEARNING OUTCOMES:

By the end of the course students will be able to:

- Explain the difference between linear and circular economy as well as infinite resources and planetary boundaries
- Understand the concept of circular economy in general and the European Union in particular
- Gain a detailed knowledge of circular economy and its building blocks and context, e.g. cradle-to-cradle
- Describe the European Union's Circular Economy Package and the concept of shared/collaborative economy
- Get insight on specific areas of circular economy, like textiles, food & consumption I believe this is covered by the first learning outcome
- Design her/his own product or design, supported by experts and the business canvas
- Demonstrate a deep knowledge of circular economy in areas of plastics and modern agriculture, renewable energies and cities
- Acquire background and context knowledge about Sustainable Development and Systems Thinking, including a System Dynamic activity
- Discuss packaging design, Austrian specifics (e.g. plastic, bio economy, packaging guidelines) and policy making with guest speakers
- Get the occasion to visit 2 sites (waste incineration and smart city Vienna) on a 1-day field trip (applied science)
- Be able to work out extended case studies on complex topics
- Form their own opinion on different topics
- Improve academic research, writing skills and oral presentation

ATTENDANCE POLICY:

IES Vienna requires attendance at all class sessions, including field study excursions, internship meetings, scheduled rehearsals, and all tests and exams. Attendance will be taken for every class. If a student misses more than the equivalent of a week of classes without an excuse, the final grade will be reduced by one-third of a letter grade (for example, A- to B+) for every additional unexcused absence.

Excused absences are permitted only when:

- 1) a student is ill (health issues),
- 2) when class is held on a recognized religious holiday traditionally observed by the particular student, or
- 3) in the case of a grave incident affecting family members;
- 4) exceptions may be made for conflicting academic commitments, but only in writing and only well in advance of missed class time.

Any other absences are unexcused.

Missing Mandatory Field-trip Outside of Regular Class Hours

Some classes include mandatory trips outside of regular class hours, i.e. on weekends. Students will be made aware of the specific dates of such trips at the latest during the first week of class. Missing a mandatory field trip for reasons other than a health or medical emergency will automatically result in a reduction of the final grade by a third of a letter grade.

CONTENT:

| Week / Class | Content | Readings/Assignments |
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| <p>Week 1 Class 1</p> | <p>Introduction to the course I</p> <ul style="list-style-type: none"> • Professor’s presentation of the course • Expectations of students • Learning Outcomes • Introducing Circular Economy (CE) • Infographic and video on CE for first discussion • Concept <p>A framework for an economy that is restorative and regenerative by design:</p> <ul style="list-style-type: none"> • Design out waste and pollution • Keep products and materials in use • Regenerate natural systems • Background and context: Schools of Thought | <p>Interviewing classmates in order to know each other. Trajectory: Where am I? - Where will I go? - What will I need?</p> <ul style="list-style-type: none"> • Stahel, W.R., The circular economy (2016). Available: https://www.nature.com/news/the-circular-economy-1.19594 Nature 531, 435–438 (4 pages). Accessed: 20th February 2019. <p>Schools of thought:</p> <ul style="list-style-type: none"> • Biomimicry • Blue economy • Cradle to cradle • Industrial ecology • Resource recovery • Systems thinking • The Biosphere Rules • Ellen Mac Arthur Foundation, “Schools of Thought” (text and videos): Available: https://www.ellenmacarthurfoundation.org/circular-economy/concept/schools-of-thought. (5 pages, 4 videos). Accessed: 20th February 2019. |
| <p>Class 2</p> | <p>Introduction to the course II</p> <p>The world’s resources are limited, but we are living as if they weren’t. Our economic system is based on taking precious resources from the natural environment, creating products with a built-in life-span and throwing them away to then buy new ones. This destructive system means that it now takes the earth 18 months to replenish the resources humanity consumes in a year. Our world is only 9% circular. Why?</p> <ul style="list-style-type: none"> • The Sharing Economy <p>European Union I</p> <p>What is the EU doing in the field of Circular Economy? Are there progressive concepts or just more of the same? Bernhard’s insight of EU policies and legislation will offers a comprehensive insight.</p> <ul style="list-style-type: none"> • The Collaborative Economy concept of the European Union • Circular Economy Package (CEP) EU • Building Blocks (if time) | <ul style="list-style-type: none"> • The Circularity Gap Report (2019). Available: https://docs.wixstatic.com/ugd/ad6e59_ba1e4d16c64f44fa94fbd8708eae8e34.pdf p.10-30. Accessed: 20th February 2019. • Schor J., “Debating the sharing economy”. Available: https://www.ceeol.com/search/article-detail?id=430188, 16 pages. Accessed: 20th February 2019. • European Commission, Collaborative Economy Communication: “A European agenda for collaborative economy”. Available: http://ec.europa.eu/DocsRoom/documents/16881/attachments/2/translations, 16 pages. Accessed: 20th February 2019. • European Commission, Circular Economy Package: Q&A. Available: http://europa.eu/rapid/press-release MEMO-15-6204_en.htm, 2 pages. Accessed: 20th February 2019. • Building Blocks (no pre-reading) https://www.ellenmacarthurfoundation.org/circular-economy/concept/building-blocks, 2 pages.(Circular economy design/New business models/Reverse Cycles/ Enablers and favorable system conditions) |
| <p>Week 2 Class 3</p> | <p>European Union II</p> | <ul style="list-style-type: none"> • European Union, Plastics/Single Use Plastic. Available: |

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| | <p>Closer look at EU's Circular Economy Package/ Plastic Strategy/Single Use Plastic.</p> <p>Challenging common conceptions (Topic 1)</p> <p>Looking at links between environmental and economic issues; begin to investigate a different way of approaching environmental, social and economic issues.</p> | <p>https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1516265440535&uri=COM:2018:28:FIN, 18 pages. Accessed: 20th February 2019.</p> <p>Watching 8 YouTube-videos on linear economy, recycling, use less, longer lasting products, more efficiency, green products, fewer people and how do other species live. Each video ends with a question. Students will prepare the questions and discuss it in class:</p> <ul style="list-style-type: none"> • Ellen Mac Arthur Foundation, "Seeing the bigger picture". Available: https://www.youtube.com/playlist?list=PLD2C43638C526D33F. Accessed: 20th February 2019. |
| Class 4 | <p>Exploring the circular economy (Topic 2)</p> <p>Compare living systems with manmade systems; linear/materials economy; begin to investigate an alternative model: the circular economy.</p> <p>If time, we will have a closer look at system dynamics and complexity as well as a system dynamics activity.</p> | <ul style="list-style-type: none"> • Raworth K., (2017), "Doughnut Economics - Seven Ways to Think Like a 21st-Century Economist", p. 111-138 • System Dynamics Activity (no pre-reading) https://app.box.com/s/0c0dbj7fli0avhonxvq4weneisor5lo |
| Week 3 Class 5 | <p>Understanding the challenge of 'finite' resources (Topic 3)</p> <ul style="list-style-type: none"> • Inspiring video about Lady Ellen Mac Arthur. • Understand the urgent challenge of finite resources; explore economic history since industrial revolution; evaluate our current consumption and production systems. <p>European Union III</p> <p>Closer look at EU's Sustainable consumption and production policy:</p> <p>Faced with a global scarcity of natural resources, 'doing more with less' has become the main challenge for producers and consumers. EU policies seek to improve the overall environmental performance of products throughout their life cycle, stimulate demand for better products and production technologies, and help consumers make informed choices.</p> | <ul style="list-style-type: none"> • The Ellen Mac Arthur Foundation, "Towards the Circular Economy" (Chapter 1-3, p. 13-62), Available: https://www.ellenmacarthurfoundation.org/assets/downloads/publications/Ellen-MacArthur-Foundation-Towards-the-Circular-Economy-vol.1.pdf. Accessed: 20th February 2019. • European Parliament, "Sustainable consumption and production". Available: http://www.europarl.europa.eu/factsheets/en/sheet/77/sustainable-consumption-and-production, 6 pages. Accessed: 20th February 2019. • European Commission, "Factsheet Production". Available: https://ec.europa.eu/commission/sites/beta-political/files/circular-economy-factsheet-production_en.pdf, 1 page. Accessed: 20th February 2019. |

Class 6

Designing for a circular economy (Topic 4)

Introduction of companies that have adopted the circular economy:

Can we design a product or service based on the circular economy?

Strategies and examples (I)

- Examples: Textiles, Fashion, Alternatives to petroleum-based packaging, Brownies, Jeans

- Strategies:
Design/Buy/Make/Sell/Dispose/Finance

Students will prepare the 3 case studies and answer questions in class using a 'think, pair, share'-approach to help collect responses from everyone in the room.

- Ellen Mac Arthur Foundation, "Selling light as a service". Available: <https://www.ellenmacarthurfoundation.org/case-studies/selling-light-as-a-service>, 2 pages. Accessed: 20th February 2019.
- Ellen Mac Arthur Foundation, "Business to Business Asset Sharing". Available: <https://www.ellenmacarthurfoundation.org/case-studies/business-to-business-asset-sharing>, 3 pages. Accessed: 20th February 2019.

Students will choose one example and one strategy listed below and do a short presentation in class. The exact description of the task will be presented in week 5.

The examples are: textiles, fashion, alternatives petroleum-based packaging, brownies or jeans;

The strategies are: design, buy, make, sell, dispose, finance.

- Circle Economy, "Textiles". Available: <https://www.circle-economy.com/case/making-the-recycling-of-post-consumer-textiles-a-reality/#.XGBO0mICe70>. Accessed: 20th February 2019.
- Circle Economy, "Fashion", Available: https://www.circle-economy.com/case/on-course-circular-fashion/#.XGBO_GICe70. Accessed: 20th February 2019.
- Ellen Mac Arthur Foundation, " Alternatives to Petroleum". Available: <https://www.ellenmacarthurfoundation.org/case-studies/growing-alternatives-to-petroleum-based-packaging>. Accessed: 20th February 2019.
- Benjerry, Available: <https://www.benjerry.co.uk/values/how-we-do-business/brownies>. Accessed: 20th February 2019.
- Ellen Mac Arthur Foundation, "Cotton Jeans". Available: <https://www.ellenmacarthurfoundation.org/case-studies/pioneering-a-lease-model-for-organic-cotton-jeans>. Accessed: 20th February 2019.

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| | | <ul style="list-style-type: none"> • EEA, Circular Economy, p. 16-30. Available: https://circulareconomy.europa.eu/platform/sites/default/files/circular_by_design_-_products_in_the_circular_economy.pdf. Accessed: 21st February 2019. • Circular Economy Guide (selected examples for pre-reading). Available: https://www.ceguide.org/. Accessed: 20th February 2019. |
| Week 4 Class 7 | Strategies and examples (II) | Continuation of class 6. |
| Class 8 | <p>The Circular Economy & Modern Agriculture (Topic 5)</p> <p>Understand the challenges around conventional monocultures and soil quality; challenges in modern agriculture and securing food supply for the future (<i>see also class 5</i>)</p> <p>‘Sekem – Agriculture’ established biodynamic agriculture in Egypt; keeping high environmental, social, and sustainable standards</p> | <ul style="list-style-type: none"> • Ellen Mac Arthur Foundation “The CE and modern agriculture”. Available: https://www.ellenmacarthurfoundation.org/assets/downloads/schools-colleges/Schools-Colleges-WLL-Lesson-Plan-5-F.pdf, 9 pages. Accessed : 20th February 2019. <p>(Watching videos before class and prepare sheet for discussion. This class includes a case study; learning activity and action exercises).</p> <ul style="list-style-type: none"> • SEKEM Ltd. Available/ https://www.sekem.com/en/index/ (no pre-reading) Accessed: 20th February 2019. |
| Week 5 Class 9 | <p>Redesigning Plastics (Topic 6)</p> <p>Plastics have become an integral part of modern life, providing many benefits for consumers and producers. But what happens to our waste plastic? Where does it all end up? Is recycling plastics really that effective?</p> | <ul style="list-style-type: none"> • New Plastics Economy, p. 22-43, 44-73, 86-96. Available: https://newplasticseconomy.org/assets/doc/EllenMacArthurFoundation_TheNewPlasticsEconomy_Pages.pdf. Accessed: 20th February 2019. |
| Class 10 | <p>Redesigning Plastics (Topic 6) (cont.)</p> <p>NGO goes circular - Guest Speaker I</p> <p>Ms Julika Dittrich is Program Manager of the circular economy projects of one of Austria’s leading environmental umbrella organisations, creator of the ‘Circular Futures’ platform and a leading expert on circular economy and system change. She will also have a focus on Austria’s implementation of EU legislation.</p> | <p>See class 9.</p> <p>No Pre-Reading but repeat classes European Union I-III and The Ellen Mac Arthur Foundation, “Towards the Circular Economy” (Chapter 1-3, p. 13-62) (class 5)</p> <ul style="list-style-type: none"> • Circular Futures. Available: https://www.circularfutures.at/. Accessed: 20th February 2019. |

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| <p>Week 6 Class 11</p> | <p>Midterm Paper and Presentation</p> <p>The first part of the midterm exam is a written report (take-home paper) of minimum 1,500 words (font size should be 12pt Times New Roman, double spaced). It must include, at least, 3 citation sources. The second part is a short presentation (visual/oral or oral only) of the outcomes of the written paper, presented by the students in class. Details and scheme will be published by the instructor in advance.</p> | <p>Using a common household good, the students will demonstrate its optimum design regarding disassembly; easy repair; closing the materials loops; etc.</p> |
| <p>Class 12</p> | <p>Circular Economy and Cities</p> <p>This class outlines some of the major innovations and trends associated with modern cities, both in terms of what is happening now and what is in store for the future. In preparation for Excursion II (class 16)</p> | <ul style="list-style-type: none"> • Ellen Mac Arthur Foundation, The future of cities, p. 5-53 (actions will be done in class). Available: https://www.ellenmacarthurfoundation.org/assets/downloads/future-of-cities.pdf. Accessed: 20th February 2019. |
| <p>Week 7 Class 13</p> | <p>Science goes circular - Guest Speaker II Silvia Apprich/Head of Industrial Packaging Technology, Packaging Technology and Sustainability/FH Campus Vienna</p> <p>Circular Packaging Design Guideline (class 6)</p> | <p>No Pre-Reading but repeat class 6.</p> <ul style="list-style-type: none"> • FH Campus Wien: Available: https://www.fh-campuswien.ac.at/forschung/kompetenzzentren-fuer-forschung-und-entwicklung/kompetenzzentrum-fuer-sustainable-and-future-oriented-packaging-solutions/circular-packaging-design-guideline.html Accessed: 20th February 2019. |
| <p>Class 14</p> | <p>Preparation for Final Exam</p> <p>We will repeat the main parts of classes 1-10 and learn how to develop a business canvas as students will pitch their own business model for the final paper. As an example the cradle-to-cradle design of carpets will be presented in class as well as the way how to develop a Business Canvas.</p> | <p>No pre-reading.</p> |
| <p>Week 8 Class 15</p> | <p>From Waste to Energy – Applied Circular Economy Waste (Excursion I)</p> <p>Our first excursion will bring us to Vienna’s biggest waste incineration plant where 400,000 tons of waste is converted into 450,000 MWh (Megawatt hours) of district heating and 50,000 MWh of electricity</p> | <p>No pre-reading.</p> <ul style="list-style-type: none"> • Vienna Energy – Waste Incineration Plant/District Heating, Vienna. Available: https://www.wienenergie.at/eportal3/ep/channelView.do/pageTypeld/67831/channelId/-49104. Accessed: 21st February 2019. |
| <p>Class 16</p> | <p>From Vienna to smart city Aspern – Applied Circular Economy Cities (Excursion II)</p> <p>Our 3rd excursion leads us to Aspern Seestadt, one of Europe’s largest urban development projects – a</p> | <p>No pre-reading but repeat class 11.</p> |

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| | smart city with a heart (a lake), designed to accommodate the whole spectrum of life. Built on a foundation of innovative concepts and forward-looking ideas, this city-within-a-city combines high quality of life with economic drive. | <ul style="list-style-type: none"> Seestadt Aspern: Available: https://www.aspern-seestadt.at/en. Accessed: 21st February 2019. |
| Week 9 Class 17 | Renewable Energies & Energy Efficiency The idea of a circular economy is a substantial shift to renewables and energy efficiency – also a consequence of designing products for longer life and as a service, where appropriate. | <ul style="list-style-type: none"> Renewable Energy World: Types of Renewable Energy. Available: https://www.renewableenergyworld.com/index/tech.html, 4 pages. Accessed: 21st February 2019. |
| Class 18 | Agenda 2030 and its Sustainable Development Goals/SDGs Showing the link between UN's Sustainable Development Goals and Circular Economy | <ul style="list-style-type: none"> Sustainable Development Goals. Available: https://sustainabledevelopment.un.org/?menu=1300 (use 1 hour to get first information on this site). Accessed: 20th February 2019. Sustainable Development Goal 12 and its targets. Available: https://sustainabledevelopment.un.org/sdg12 (use 30min to get insight on SDG 12). Accessed: 20th February 2019. Patrick Schroeder, Kartika Anggraeni, Uwe Weber, "The Relevance of Circular Economy - Practices to the Sustainable Development Goals- Circular Economy and SDGs". Available: https://www.researchgate.net/publication/323156948_The_Relevance_of_Circular_Economy_Practices_to_the_Sustainable_Development_Goals_Circular_Economy_and_SDGs, (20 pages). Accessed: 20th February 2019. Geissdoerfer, Martin; Savaget, Paulo; Bocken, Nancy M. P.; Hultink, Erik Jan (2017-02-01) "The Circular Economy – A new sustainability paradigm?" Journal of Cleaner Production. 143: 757–768 |
| Week 10 Class 19 | Final Presentation I | |
| Class 20 | Final Presentation II | |

COURSE-RELATED TRIPS:

A one-day field trip to 2 different sites in/around Vienna will be organized during week 8 as part of the course:

- Vienna Energy
- Seestadt Aspern

REQUIRED READINGS:

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- Benjerry, Available: <https://www.benjerry.co.uk/values/how-we-do-business/brownies>. Accessed: 20th February 2019.
- Circle Economy, “Fashion”, Available: https://www.circle-economy.com/case/on-course-circular-fashion/#.XGBO_GlCe70. Accessed: 20th February 2019.
- -----, “Textiles”. Available: <https://www.circle-economy.com/case/making-the-recycling-of-post-consumer-textiles-a-reality/#.XGBO0mlCe70>. Accessed: 20th February 2019.
- Circular Economy Guide. Available: <https://www.ceguide.org/>. Accessed: 20th February 2019.
- de Wit M., Verstraeten-Jochems J., Hoogzaad J., Kubbinga B. (2019), The Circularity Gap Report. Available: https://docs.wixstatic.com/ugd/ad6e59_ba1e4d16c64f44fa94fbd8708eae8e34.pdf p.10-30. Accessed: 20th February 2019.
- EEA, Circular Economy, p. 16-30. Available: https://circulareconomy.europa.eu/platform/sites/default/files/circular_by_design_products_in_the_circular_economy.pdf. Accessed: 21st February 2019.
- Ellen Mac Arthur Foundation, “Alternatives to Petroleum”. Available: <https://www.ellenmacarthurfoundation.org/case-studies/growing-alternatives-to-petroleum-based-packaging>. Accessed : 20th February 2019.
- -----, “Business to Business Asset Sharing”. Available: <https://www.ellenmacarthurfoundation.org/case-studies/business-to-business-asset-sharing>. Accessed: 20th February 2019.
- -----, “Cotton Jeans”. Available: <https://www.ellenmacarthurfoundation.org/case-studies/pioneering-a-lease-model-for-organic-cotton-jeans>. Accessed: 20th February 2019.
- -----, “Schools of Thought”. Available: <https://www.ellenmacarthurfoundation.org/circular-economy/concept/schools-of-thought>. Accessed: 20th February 2019.
- -----, “Selling light as a service”. Available: <https://www.ellenmacarthurfoundation.org/case-studies/selling-light-as-a-service>. Accessed: 20th February 2019.
- -----, “The CE and modern agriculture”. Available: <https://www.ellenmacarthurfoundation.org/assets/downloads/schools-colleges/Schools-Colleges-WLL-Lesson-Plan-5-F.pdf> Accessed : 20th February 2019.
- -----, The future of cities, p. 5-53. Available: <https://www.ellenmacarthurfoundation.org/assets/downloads/future-of-cities.pdf>. Accessed: 20th February 2019.
- -----, “Towards the Circular Economy” <https://www.ellenmacarthurfoundation.org/assets/downloads/publications/Ellen-MacArthur-Foundation-Towards-the-Circular-Economy-vol.1.pdf>. (please note: this publication is the main source of information for students and the standard reference for this course)
- European Commission, Collaborative Economy Communication: “A European agenda for collaborative economy”. Available: <http://ec.europa.eu/DocsRoom/documents/16881/attachments/2/translations>. Accessed: 20th February 2019.
- -----, Circular Economy Package: Q&A. Available: [http://europa.eu/rapid/press-release MEMO-15-6204_en.htm](http://europa.eu/rapid/press-release_MEMO-15-6204_en.htm). Accessed: 20th February 2019.
- -----, “Factsheet Production”. Available: https://ec.europa.eu/commission/sites/beta-political/files/circular-economy-factsheet-production_en.pdf. Accessed: 20th February 2019.
- European Parliament, “Sustainable consumption and production”. Available: <http://www.europarl.europa.eu/factsheets/en/sheet/77/sustainable-consumption-and-production>. Accessed: 20th February 2019.
- European Union, Plastics/Single Use Plastic. Available: <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1516265440535&uri=COM:2018:28:FIN> Accessed: 20th February 2019.
- Geissdoerfer, Martin; Savaget, Paulo; Bocken, Nancy M. P.; Hultink, Erik Jan (2017) “The Circular Economy – A new sustainability paradigm?” Journal of Cleaner Production.
- New Plastics Economy, p. 22-43, 44-73, 86-96. Available: https://newplasticseconomy.org/assets/doc/EllenMacArthurFoundation_TheNewPlasticsEconomy_Pages.pdf. Accessed: 20th February 2019.
- Raworth K. (2017), “Doughnut Economics - Seven Ways to Think Like a 21st-Century Economist”.
- Schor J., “Debating the sharing economy”. Available: <https://www.ceool.com/search/article-detail?id=430188>. Accessed: 20th February 2019.

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