



Working paper

Good Practice Examples:

**Activities in Sustainable Entrepreneurship at
Universities in Finland, Germany, Sweden, the United
Kingdom and the United States**

Work Package 2:

The Role of Universities in Supporting Sustainable Entrepreneurship

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Preface

The project SHIFT – Support Systems for Sustainable Entrepreneurship and Transformation – is being carried out in the timeframe 2012-2016 within the first call of the EU research network ECO-INNOVERA,¹ which enables international collaborative projects on eco-innovation that are funded by the respective national funding organisations of the participating research institutions. The goal of the project is to analyse how public, intermediary and private support systems for entrepreneurship have to be changed in order to systematically boost the development and implementation of eco-innovation, and make realistic recommendations for policy makers and important actors of the support system on how to initiate a paradigm change in their supporting schemes.

This working paper contains the results of research on good practice examples of university support of sustainable entrepreneurship. It comprises activities in sustainable entrepreneurship at universities in Finland, Germany, Sweden, the United Kingdom and the United States. This working paper is part of the SHIFT Work Package 2: The Role of Universities in Supporting Sustainable Entrepreneurship.

More information on the SHIFT project can be obtained at www.shift-project.eu

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¹ www.eco-innova.eu

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1 Introduction

It is the goal of the following *good practice profiles* to outline good practices of higher education institutions (HEIs) in Finland, Germany, Sweden, the United Kingdom and the USA that have successfully integrated sustainability in their entrepreneurship support systems. Insights gained into the present status of entrepreneurship activities will provide a basis for further research in Working Package 2 (WP 2) of the SHIFT project (cf. Synopsis for WP 2 as of 5 Dec. 2013).

Hereby, the authors investigated different university activities and programmes which may serve as an indicator of the respective institution's commitment towards sustainability- or climate change-inspired entrepreneurship. The association between entrepreneurship and sustainability on a strategic and operational level at HEIs has not been sufficiently explored. Therefore, the good practice profiles take a deeper look at activities and programmes with the aim of providing examples which can be applied to the landscape of higher education institutions overall.

The analysis of good practices include (1) the integration of entrepreneurship and sustainability in the institution's overall strategy or organizational structure; (2) an incorporation of sustainable entrepreneurship in its teaching curriculum or (3) research in regard to sustainable entrepreneurship and eco-innovation; (4) support structures that encourage sustainable entrepreneurship (such as incubators); and (5) collaborations with organizations outside of university boundaries as an external stimulus of sustainable entrepreneurship (see chapter 2 below for a description of the methodology).

2 Methodology

2.1 Geographical Scope

The geographical scope of our study focuses on five select countries:

- Finland
- Germany
- Sweden
- UK
- USA

Finland, Germany and Sweden were selected due to the countries' participation as SHIFT partners and their lead role in spearheading eco-innovation. In the Eco-Innovation Observatory's Eco-Innovation Scoreboard (2013) Sweden, Finland and Germany are leading the ranking of EU-28 Member States.

The UK was selected due to the country being Europe's most international education market (cf. Hemsley-Brown and Oplatka, 2010), its general market orientation (cf. de Weert, 2011; Universities UK, 2014), its cultural position "between the US and other European countries" and its rank amongst the top 4 in the Eco-Innovation Observatory's Eco-Innovation Scoreboard (2013).

The US was selected as a reference point due to its role as the world's most global market in higher education (cf. Shanghai Jiao Tong University, Center for World-Class Universities, 2014) with its business schools setting milestones and its entrepreneurial centres for global technology entrepreneurship (such as the Silicon Valley and Boston, Massachusetts) serving as templates for entrepreneurial ecosystem development.

The selection of suitable higher education institutions in Germany builds on an exploratory study of the German higher education landscape which was carried out in the framework of Working Package (WP) 2.1 of the project StartUp4Climate and was informed by Internet and literature research (Tiemann, 2014).

The basic set are 27 higher education institutions which have been determined as part of the best 25% on the basis of the German Startup Radar 2012 ("Gründungsradar 2012") (Frank et al., 2013). Out of those higher education institutions with an explicit focus on entrepreneurship, those institutions were selected that have successfully integrated climate protection and sustainability aspects in their entrepreneurship support systems. Criteria for a successful integration are the focus of entrepreneurship chairs (including their research and course curricula) or entrepreneurship centres (including the nature of university spin-offs) on climate protection and sustainability issues.

In addition to the shortlist of 27 higher education institutions in Germany, additional universities have been taken into consideration on the basis of recommendations made during expert interviews.

These expert interviews investigated the connection between entrepreneurship and sustainability as the influence of sustainability concerns on entrepreneurial activities at German universities had not been explored previously in academic or popular literature.

Building on the exploratory study of the German higher education landscape similar interviews were carried out in Finland and Sweden (cf. Geier and Fichter, 2014a; Geier and Fichter, 2014b).

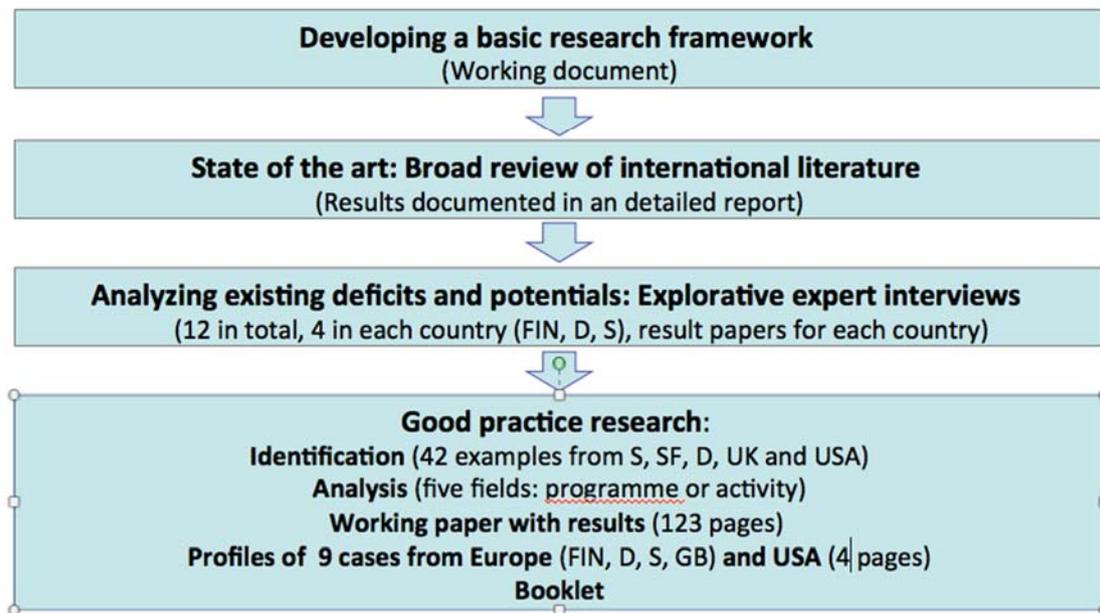
As for the US and the UK, we conducted additional desk research as a basis for our selection of higher education institutions that combine sustainability and entrepreneurship on a strategic and operational level. The authors' desk research focused primarily on university websites and sustainability-related reports (cf. Center for Responsible Business, Haas School of Business University of California, Berkeley, 2014; Haas School of Business, University of California, Berkeley, 2014). Also, Net Impact's *2014 Business as Unusual* guide served as a reference.

In our analysis of good practice examples we sought verification of our findings from all of the respective institutions listed in our table. All higher education institutions confirmed or amended the information provided with the exception of the following institutions: Technical University (TU) Berlin, Germany; KTH Royal Institute of Technology, Stockholm, Sweden; Uppsala University, Uppsala, Sweden; University of Reading, UK; University of Strathclyde, Glasgow, UK; Babson College, Wellesley, MA, USA; Massachusetts Institute of Technology (MIT), Sloan School of Management, Cambridge, MA, USA; and University of California, Berkeley, CA, USA.

In summary, we divided our approach into the following stages in order to develop our good practice research:

Figure 1: Methodology of good practice research on sustainable entrepreneurship activities at higher education institutions (Source: Own Illustration)

Methodology



Source: Own Illustration

2.2 Framework for Investigating Good Practice of University Support for Sustainable Entrepreneurship

Based on a detailed literature review Rothaermel et al. suggest four elements to build a conceptual framework of university entrepreneurship: (1) entrepreneurial university, (2) productivity of Technology Transfer Offices, (3) new firm creation, and (4) environmental context including networks of innovation (Rothaermel et al., 2007). Following Rothaermel et al. we put the entrepreneurial university in the centre of our framework. To get a differentiated view we structure the entrepreneurial university into the five internal elements (see Figure 1). The **institutional framing (1)** leads the top-down processes for implementation of entrepreneurship and sustainability by defining the strategy and mission, organising the structures und functions of the institutions (e.g. professorships for entrepreneurship) and developing the culture of the university (Jacob, Lundqvist, & Hellsmark, 2003). According to the extended role of the university² (Henry Etzkowitz et al., 2000) we divide the basic

² „The capitalization of knowledge represents a transformation of the role of the university in society comparable to the first academic revolution of the late 19th and early 20th century when research became an accepted academic task.” (H. Etzkowitz, 2001)

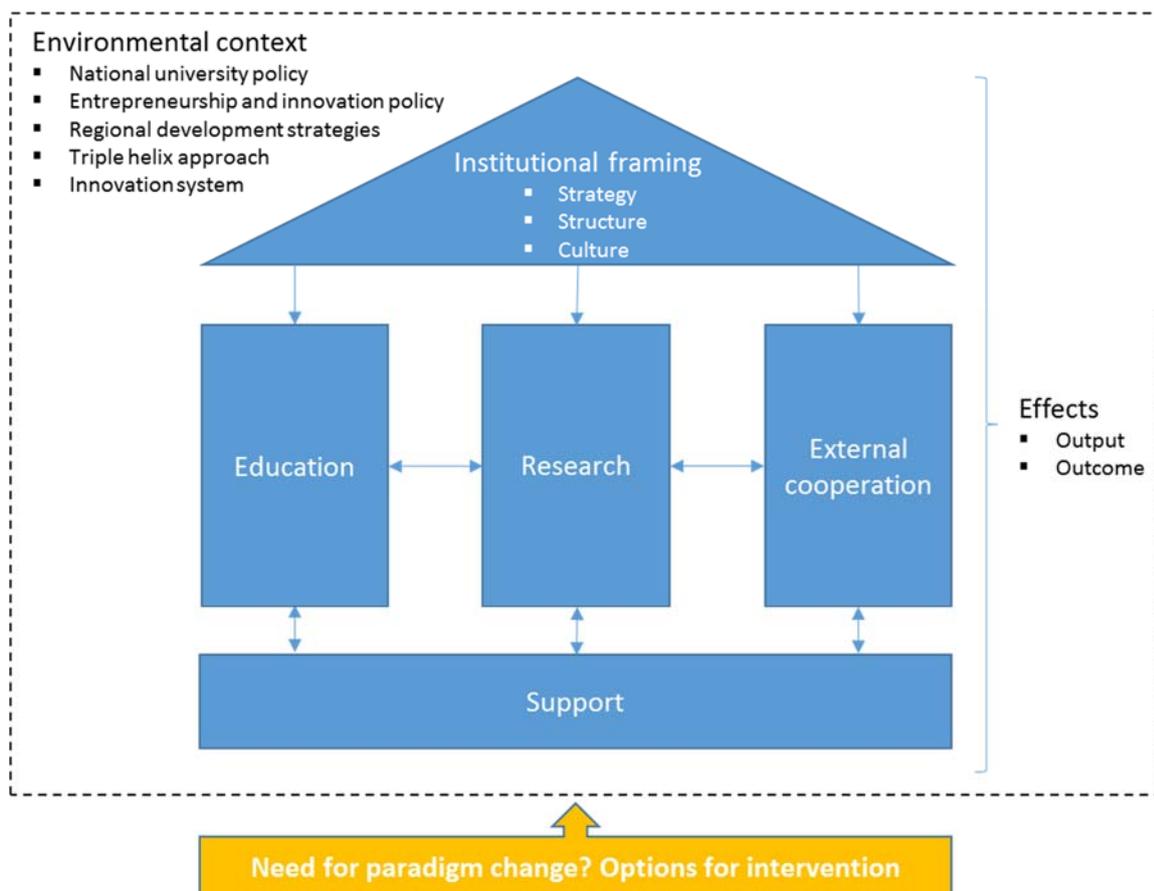
activities into **education (2)** (the teaching activities), **research (3)** (research activities), and **external cooperation (4)** (e.g. cooperation with start-ups and SMEs).

The university's support activities like consulting members of the university in their entrepreneurial endeavours, coaching academic start-up teams or support by providing infrastructure within university entrepreneurship centres or incubators are summarized in the element **support (5)**.

The shift to more entrepreneurial activities arises from both the internal development of the university and external influences on academic structures (Henry Etzkowitz et al., 2000; Rothaermel et al., 2007). Thus we expect that the five elements are mutually dependent on **the environmental context**.

The **effects** of the implementation of sustainable entrepreneurship are considered in our conceptual framework as outputs (e.g. number of students in a sustainable entrepreneurship and eco-innovation relevant master programme, number of green spin-offs etc.) and outcomes (reduction of greenhouse gas emissions from green spin-offs etc.).

Figure 2: Options for intervention in the supporting system of universities for sustainable entrepreneurship and innovation



Source: Own Illustration.

Based on this conceptual framework, we looked at the following dimensions when composing suitable examples as good practice profiles:

Institutional integration: Organizational or strategic measures which exemplify the integration of sustainability and entrepreneurship efforts. An institutional integration can take plans on several levels:

- University goals/mission: Key Performance Indicators (KPIs), a scorecard or other guiding principles refer to **sustainability or entrepreneurship**
- Centres: Centres that deal with **both entrepreneurship/innovation and sustainability**. This can either be an entrepreneurship & innovation centre that integrates sustainability or a sustainability centre/institute that deal with entrepreneurship/innovation issues
- Professorships/chairs: Professorships or chairs that deal with **both entrepreneurship/innovation and sustainability**. This could be a teaching chair for a programme in “Sustainable Entrepreneurship” or “Sustainable Innovation Management”.

Curricula or teaching (including relevant research): Teaching curricula, programmes and/or modules contain both elements of entrepreneurship and sustainability. This category may also include relevant research areas which could result in a teaching-focused curriculum.

Research: Explicit research focus on sustainable entrepreneurship and eco-innovation. This would be more than a single (one-off) research project.

Support of concrete start-up undertakings: This includes services offered by entrepreneurship/innovation centres or internal or affiliated incubators whose main purpose it is to support start-up undertakings with a climate-orientation or sustainable development focus (including clean technologies or energy efficiency).

External co-operation: This includes collaborations and networking with external actors such as specialized incubators or local companies focused on entrepreneurship and sustainability. An example is the Climate-KIC programme which incentivizes an integration of entrepreneurship and sustainability content in related Master’s level or professional development/summer school programmes.

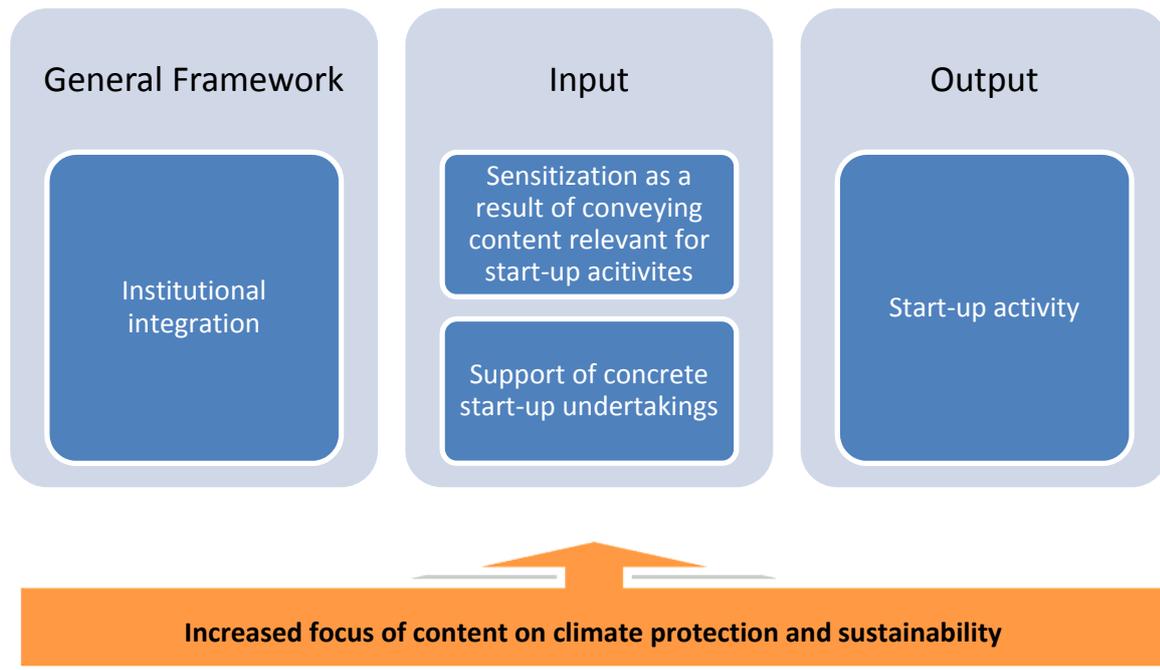
2.3 Country-specific Approach

2.3.1 Germany

In order to determine which German higher education institutions successfully integrate climate protection and sustainability aspects in their entrepreneurship support systems Tiemann (2014, p. 83) distinguished between the following elements in a university start-up support system (cf. Figure 2):

- Institutional integration of climate protection and sustainability
- Sensitization as a result of conveying relevant content
- Support of concrete start-up undertakings with a climate protection or sustainability focus
- Start-up activity in regards to climate protection or sustainability

Figure 2: Adjusted indicators on the basis of Startup Radar 2012 (“Angepasste Indikatoren in Anlehnung an das Gründerradar 2012”)



Source: Frank et al., 2013

The *institutional integration* of climate protection and sustainability aspects in their start-up support is not available at any of the 27 higher education institutions investigated. There is only one innovation/entrepreneurship chair with the denomination of “sustainability”, which is the adjunct professorship for “Innovation Management and Sustainability” at the University of Oldenburg. At start-up centres there are selected offerings on the issues of climate protection and sustainability. Sporadically, there are examples for co-operations between entrepreneurship chairs and centres with chairs and centres in climate protection and sustainability (e.g., co-operation of the Centre for Entrepreneurship with the School of Sustainability at the University of Kiel).

The *sensitization* of students interested in entrepreneurial activities in the areas of climate protection and sustainability in conjunction with university seminars has so far been insufficient. Only a few higher education institutions could be identified by means of Internet research that in their start-up support explicitly act on topics relating to climate change, cleantech or sustainability (e.g., Technical University of Berlin, University of Kiel and University of Oldenburg).

The TU Berlin offers, in collaboration with the European consortium “Climate Knowledge and Innovation Community” (Climate-KIC) a Master’s level degree programme in “Climate Innovation” and a summer school programme for Master’s or PhD level students (Academy of Climate Innovation – The Journey). Special to the summer school is its collaborative nature between different higher education institutions that are part of the Climate-KIC network.

At the University of Kiel the Assistant Professorship in Entrepreneurship offers research seminars on the topics of “Ecopreneurship” and Green Entrepreneurship.

The University of Oldenburg offers an emphasis in “Eco-Venturing” as part of its Master’s course in “Sustainability Economics and Management”.

As part of the *expert interviews* additional higher education institutions relevant for our questions could be identified. It is worth highlighting the Bergische University Wuppertal due to its support of clean technologies with the help of innovative start-ups in the context of the collaboration between the “Institut für Gründungs- und Innovationsforschung” (IGIF) (*engl.* “Institute for Entrepreneurship and Innovation Research”) and the Wuppertal Institute for Climate, Environment, Energy (WI) (BU Wuppertal, 2014). The Flensburg University of Applied Sciences offers “MINT-GREEN Entrepreneurship” particularly to non-business students. The offering is directed towards mathematics, IT, natural sciences and technology students as well as “green” degree programmes (FH Flensburg, 2014). Moreover, the “Dr. Werner Jackstädt Centre for Entrepreneurship and Medium-sized Companies Flensburg (a co-operation between the Flensburg University of Applied Sciences and the University of Flensburg) this year offered the “International Green Entrepreneurship Forum” (IGEF) for the first time. The IGEF investigated how green economy models can jointly be supported by policy makers, the general public and the economy. Based on an initiative of the “Stiftung für naturnahes Wirtschaften” (*engl.* “Foundation for Nature-orientated Economic Activity”) the Hamburg University of Technology (TUHH) since 2013 awards the TUHH Start-up Prize Sustainability 2014 in order to support start-ups with a focus on green technologies (TUHH, 2014).

Furthermore, as part of the expert interviews there were references to higher education institutions that are part of the Climate-KIC network. This includes RWTH Aachen University, the University of Hamburg, Technical University Munich and its UnternehmerTUM – Center for Innovation and Business Creation. The University of Karlsruhe and the University of Stuttgart of the KIC-InnoEnergy Network were also mentioned.

The Climate-KIC and the KIC-InnoEnergy network represent a unique concept in start-up support with the thematic focus on climate change and renewable energies. As a comprehensive concept that goes beyond single universities, this is an exception in the German landscape of higher education.

Reinforced support of concrete start-up activities in the areas of climate protection and sustainability due to consulting activities could not be identified as part of the Internet research. There were no special consulting offerings for entrepreneurs intending to create a new company in climate protection and ecology. With the help of the expert interviews the TUHH Start-up Dock – Centre for Innovation & Entrepreneurship could be identified as an institution that offers consulting especially for start-ups in Green Technologies. This seems to be a unique case example at this stage.

In summary, based on the outcome of our research, the authors chose the following German HEIs for their efforts in combining sustainable development and entrepreneurship in their activities and programmes:

- Bergische University Wuppertal
- Flensburg University of Applied Sciences
- Hamburg University of Technology (TUHH)
- Karlsruhe Institute of Technology (KIT)

- Leuphana University of Lüneburg
- Technical University of Berlin (TU Berlin)
- Technische Universität München (“Technical University Munich”) (TU Munich)
- University of Applied Sciences Munich
- University of Hamburg
- University of Kiel
- University of Oldenburg
- University of Stuttgart

2.3.2 Sweden

We focused on those university faculty as experts who are involved with university entrepreneurship and innovation activities. Selection criteria primarily required knowledge in the field of (traditional) entrepreneurship but also an understanding of the entrepreneurship landscape (including sustainability) overall. Altogether we interviewed four experts, which were recommended by Magnus Klofsten, Professor of Innovation & Entrepreneurship and founding director of the Centre for Innovation and Entrepreneurship (CIE) at Linköping University.

Expert interviews were carried out with experts in entrepreneurship and innovation at the following institutions: Luleå University of Technology; Chalmers School of Entrepreneurship at Chalmers University of Technology; Linnaeus University; and the Sahlgrenska School of Innovation and Entrepreneurship (formerly Department of Clinical Trials and Entrepreneurship) at University of Gothenburg.

It can be said that start-up support at Swedish universities with a focus on sustainability or the green economy is still in the beginning of its evolution. A large part of the support system is outside of the legal structure of a university. Technical universities, which naturally have a greater focus on entrepreneurship and technology commercialization, are more likely to include sustainability issues in their programmes and support structures. Overall, it can be observed that the field of entrepreneurship as such has been widening with different areas of specialization. This leaves room for a greater concentration on areas such as social or sustainable entrepreneurship.

Based on the interviews the Chalmers University of Technology stood out as a best practice case for its strong focus on entrepreneurship education. In January 2014 the Chalmers Challenge Lab was introduced. This is an initiative for the university to connect with stakeholders to tackle sustainability challenges. Currently, the focus is on sustainable transport solutions. Goal of the Challenge Lab is also to attract public financiers and connect them with master’s level students and their activities. This may influence financiers’ perspective on content.

Based on the outcome of the interviews conducted, the authors chose the following Swedish HEIs for their efforts in combining sustainable development and entrepreneurship in their activities and programmes:

- Blekinge Institute of Technology

- Chalmers University of Technology
- KTH Royal Institute of Technology
- Linköping University (LiU)
- Luleå University of Technology (LTU)
- Swedish University of Agricultural Sciences (SLU)
- Umeå School of Business and Economics
- University of Gothenburg
- Uppsala University

2.3.3 Finland

We focused on those university faculty as experts who are involved with university entrepreneurship and innovation activities. Selection criteria primarily required knowledge in the field of (traditional) entrepreneurship but also an understanding of the entrepreneurship landscape (including sustainability) overall. Altogether we interviewed four experts, which were recommended by Mika Kuisma, Senior Researcher at Aalto University's School of Economics.

Expert interviews were carried out with experts in entrepreneurship and innovation at the following institutions: Aalto University, HAAGA-HELIA University of Applied Sciences, Lappeenranta University of Technology and Turku University of Applied Sciences.

It can be said that start-up support at Finnish universities with a focus on sustainability or the green economy is still in its infancy. A greater focus on scientific publications, through a change of the university act in 2008, has appreciated the value of intellectual property and thus incentivized independence amongst universities. Consequently, more incubator companies have formed which in turn have invested in university spin-offs. Such incubators tend to be legally independent but they are owned by the university.

Technical universities, which naturally have a greater focus on entrepreneurship and technology commercialization, are more likely to include sustainability issues in their programmes and support structures. Although cleantech has been an increasing trend in Finland, the notion of sustainability in entrepreneurship support has remained a marginal activity.

Lappeenranta University of Technology's Master's Degree Programme in Strategy, Innovation and Sustainability develops advanced competencies in the intersection of strategic management and innovation. The programme looks at sustainability issues both as challenges and an opportunities for value creation (cf. <http://www.lut.fi/web/en/admissions/masters-studies/msc-in-business-administration/strategy-innovation-and-sustainability-msis>). The programme seeks to create an awareness for economic value creation to be in line with the creation of value to the entire society in a responsible manner. As such the programme is in line with the university's philosophy and strategy overall, namely to focus on sustainable value creation. Lappeenranta University of Technology had already been certified in terms of its environmental management system in the early 2000s.

Aalto University's international Master's Degree Programme in Creative Sustainability (CS) takes a multi-disciplinary approach and is offered jointly by the School of Arts, Design and Architecture, School of Business and School of Engineering. The CS programme touches upon the fields of architecture, business, design, landscape planning, real estate and urban planning. It is also offered as minor subject studies for all master level students of Aalto University. The practice-orientated programme encourages a holistic approach "to create new sustainable solutions for human, urban, industrial and business environments" (cf. <http://acs.aalto.fi/about-creative-sustainability/>).

Peloton, an initiative for a low-carbon economy (http://peloton.me/peloton_english.html), has run projects together with Aalto University. Such collaborations between sustainably minded innovation initiatives and academic institutions lead to informal start-up support in the green economy.

The "Start-up Journey", a summer programme organized by a student-based entrepreneurship network at the Turku University of Applied Sciences, has proven to be an efficient self-organized programme to incorporate sustainability in their programme. Such student-led networks could also be initiated at other universities.

Based on the outcome of the interviews conducted, the authors chose the following Finnish HEIs for their efforts in combining sustainable development and entrepreneurship in their activities and programmes:

- Aalto University
- Lappeenranta University of Technology
- Turku University of Applied Sciences
- University of Jyväskylä

2.3.4 United Kingdom

In the analysis of British higher education institutions the authors undertook extensive desk research on the Internet looking for institutions that combine efforts in sustainability and entrepreneurship. We investigated HEIs' websites for offerings which stand out as exemplary and can be adopted by other HEIs in their efforts to strengthen both their focus on sustainability and climate change as well as entrepreneurship.

The following institutions stood out amongst their peers in the British HEI landscape:

- Brunel University, London, England
- Imperial College London, England
- University of Exeter Business School, England
- University of Manchester, England
- University of Nottingham, England
- University of Reading, England
- University of Strathclyde, Glasgow, Scotland

Hereby, the University of Manchester, the University of Exeter Business School and the University of Nottingham have the strongest offering combining efforts in sustainable development and business/entrepreneurship.

2.3.5 USA

As with the UK, in the analysis of American higher education institutions the authors mainly focused on desk research on the Internet identifying institutions that combine efforts in sustainability with entrepreneurship. Additionally, we looked at universities' sustainability reports if available to help us identify an institutional emphasis on sustainable development.

Due to the large number of universities and business schools in the US and in order to come up with a broad selection of HEI archetypes (technical HEIs; social science HEIs/business schools; HEIs with a societal or values-driven mandate), we focused on schools that are known for excellence in their respective field, their specific focus in either entrepreneurship or sustainability education or their explicitly values-driven approach.

The Net Impact *2014 Business as Unusual* guide helped us elaborate on some of the programmes or activities and identify programmes that are located at different schools, divisions or places in the organizational diagram of the respective institution.

The following universities were selected:

- Babson College, Wellesley, MA

Babson College is known for its strong focus on entrepreneurship within its business education. It has also a strong set of values which emphasizes sustainable development and attempts to integrate those holistically in its programmes and activities.

- Cal California Institute of Technology (Caltech), Pasadena, CA

Caltech is especially known as a world-renowned and pioneering research and education institution dedicated to advancing science and engineering. Caltech's Resnick Sustainability Institute has a strong applied research focus seeking solutions to sustainability problems applying innovation. In addition to FLoW, a mentorship-driven business plan competition, it offers different other awards incentivizing breakthroughs and sustainable solutions.

- Massachusetts Institute of Technology (MIT), Cambridge, MA

MIT is especially known for its excellence in engineering and innovation. Roberts and Eesley (2009) of the Kauffman Foundation highlight MIT's special role in the domain of entrepreneurship impact and innovation excellence. We looked at MIT's efforts with regards to sustainable development as the market position of MIT has the potential to have a significant impact on the integration of the two subject areas.

- Pinchot University, formerly known as Bainbridge Graduate Institute (BGI), Seattle, WA

Pinchot University is a business school which was founded with the premise to integrate sustain-

ability and transformational leadership into business education. It has been the first one of its kind in the United States. Pinchot University weaves sustainable development principles all throughout its curriculum. Students graduate into business roles well qualified to integrate sustainability into the value change.

- Presidio Graduate School (PGS), San Francisco, CA

PGS is a sustainable management school, offering MBA, MPA, and Dual degrees plus a JD/MBA in partnership with the University of California Hastings College of the Law. The fully integrated curriculum is designed around three programme foundations that define competence in sustainable management: sustainable systems, sustainable leadership, and business excellence.

- Santa Clara University, Santa Clara, CA

Santa Clara University is a Jesuit institution. As a Catholic university, Santa Clara is committed to faith-inspired values and education rooted in conscience and compassion in order to inspire a more just, humane, and sustainable world. The University's Miller Center for Social Entrepreneurship with its Global Social Benefit Institute (GSBI) runs practitioner-orientated acceleration programmes that focus on mentoring for social entrepreneurs with a focus on developing countries and disadvantaged communities.

- Stanford University, Stanford, CA

Stanford University is both known for research excellence and entrepreneurship. It continuously ranks amongst the top three universities in the world and it is strategically placed in the world's most renowned entrepreneurship ecosystem, the Silicon Valley. Moreover, Stanford has been innovative in introducing new methods into the domain of entrepreneurship (such as its design thinking methodology).

- University of California at Berkeley

UC Berkeley's Haas School of Business has one of the most comprehensive offerings in the area of sustainable development at the business school of a public US university. Especially its Center for Responsible Business serves as a linchpin for teaching, research and project-based initiatives in sustainability and business. Furthermore, the business school has close connections to other schools and departments at UC Berkeley which are known for research excellence in their respective field.

- University of California at Santa Barbara, Santa Barbara, CA

UC Santa Barbara runs a business programme out of a school that has its roots in environmental science and management rather than in business. At the same time, the Master's level programme run by the Bren School of Environmental Science & Management distinguishes itself by having strong connections to business and a strong entrepreneurial focus.

Other innovative university programmes that connect sustainability and entrepreneurship content from a specific perspective:

- Arizona State University School of Sustainability, Tempe, AZ (<https://schoolofsustainability.asu.edu>)

Sustainability and innovation/entrepreneurship integration: Established in 2006, the **Arizona State University School of Sustainability** is the USA's first school of sustainability. Its mission is to educate a new generation of scholars and practitioners and create innovative modes of scholarship by bringing together leaders, stakeholders, and people from multiple disciplines to develop practical solutions to the most pressing sustainability challenges.

The **Master's in Sustainable Solutions (MSUS)** is designed to prepare students to apply sustainability principles and approaches to careers in a variety of fields, addressing complex human and environmental challenges. Beginning with a foundation in sustainability theory and methods, the programme allows students to specialize in different focus areas including Entrepreneurship.

The **Executive Master's for Sustainability Leadership** is designed for global professionals with a solutions-based and outcomes-focused curriculum focused on strategy, global context, communication and leadership. The curriculum encourages the use of hands-on projects from students' own workplace as practical case studies and builds to a final capstone project that will apply directly and immediately to one's organization's sustainability plans and challenges.

- Colorado State University, Fort Collins, CO (<http://www.colostate.edu>)

The **Global Social and Sustainable Enterprise MBA at Colorado State University College of Business** seeks to provide sustainable and social enterprise solutions to some of the most pressing issues of our time including poverty, disease, malnutrition and environmental degradation. The MBA programme takes a triple bottom line approach. The **School of Global Environmental Sustainability** is an umbrella organization encompassing all research and education that deals with the complex environmental, economic, and societal issues of sustainability.

The **Energy Institute** aims to grow the impact, reach, and reputation of energy research and education at Colorado State University by increasing collaboration with industry and governmental partners, creating new research and educational opportunities. It is based at the **Powerhouse Energy Campus**, a Platinum energy research complex, is home to numerous research and policy centres, laboratories and start-ups. Accelerating job creation and entrepreneurship, **Innosphere** is a University partner at the Powerhouse Energy Campus and 501(c)(3) not-for-profit technology incubator formed to accelerate the development and success of high-impact scientific and technology start-up companies. In promoting the development of a regional entrepreneurial ecosystem, Innosphere provides support to start-up companies with resources such as assistance with raising capital, help in assembling solid management teams, access and connections with academic and government institutions, a network of advisors and mentors, discounted professional service providers, and educational and networking opportunities. More than 150 researchers across campus participate in the academic side of the **Clean Energy Supercluster** on everything from economics and policymaking to new energy sources.

Additional programmes with a focus on “Eco-Entrepreneurship” were named in the Entrepreneur Magazine (2011) in their April 2011 issue. The following institutions and programmes were highlighted in addition to the ones listed above:

- Bentley University McCallum Graduate School of Business, Waltham, MA (<http://www.bentley.edu>)

Sustainability and innovation/entrepreneurship integration: "Students engage in volunteer and paid sustainability research and have helped local companies develop sustainability plans and evaluated wind power and composting plans."

- Brandeis University International Business School, Waltham, MA (<https://www.brandeis.edu/global/>)

Sustainability and innovation/entrepreneurship integration: "MBA in Socially Responsible Business, aka the Global Green MBA. Classes include Business and the Environment, Managing the Triple Bottom Line and Investing in Energy."

- Claremont Graduate University Drucker School, Claremont, CA (<http://www.cgu.edu>)

Sustainability and innovation/entrepreneurship integration: "Claremont recently developed special topics courses on sustainability, which include an 11-day program in Costa Rica called Doing Business in a Culture of Sustainability."

- Clark University Graduate School of Management, Worcester, MA (<http://www.clarku.edu/gsom/>)

Sustainability and innovation/entrepreneurship integration: "The Dual MBA/MA Environmental Science & Policy program offers courses like Green Business Management, Management of Environmental Pollutants and Climate Change, Energy and Development."

- Columbia University Columbia Business School, New York, NY (<http://www.gsb.columbia.edu>)

Sustainability and innovation/entrepreneurship integration: "The school's Individual, Business and Society curriculum in the Sanford C. Bernstein & Co. Center for Leadership and Ethics focuses on social and sustainability topics, and includes courses like Finance and Sustainability and Business in Society."

- Duke University, The Fuqua School of Business, Durham, NC (<http://www.fuqua.duke.edu>)

Sustainability and innovation/entrepreneurship integration: "Fuqua offers a three-year MBA/Master of Environmental Management joint-degree program and helps place graduates in some of the most sought-after sustainability positions in industry and non-governmental organizations. [...] The annual Duke Conference on Sustainable Business and Social Impact attracts 350 participants each year."

- New York University Leonard N. Stern School of Business, New York, NY
(<http://www.stern.nyu.edu>)

Sustainability and innovation/entrepreneurship integration: "Stern offers a specialization in Social Innovation and Impact and features classes like Corporate Branding and Corporate Social Responsibility, Introduction to Environmental and Social Sustainability and Foundations of Social Entrepreneurship. [...] Sixty percent of NYU's MBA courses integrate content related to social and environmental impact and stewardship."

- Portland State University School of Business Administration, Portland, OR
(<http://gradbusiness.pdx.edu>)

Sustainability and innovation/entrepreneurship integration: "Portland's MBA program integrates sustainability throughout the curriculum and includes a concentration in sustainability with courses like Product Design and Stewardship, Metrics for Sustainable Enterprise and Social Sustainability. [...] The Sustainable Business Now elective gives students field experience and includes visits and conversations with 10 to 12 leading sustainability-inspired regional businesses."

- University of Michigan Stephen M. Ross School of Business, Ann Arbor, MI
(<http://www.bus.umich.edu>)

Sustainability and innovation/entrepreneurship integration: "Michigan's Erb Institute for Global Sustainable Enterprise is a partnership between the School of Natural Resources and Environment and the Ross School of Business. Its three-year MS/MBA program includes courses like Green Development, Sustainable Manufacturing and Environmental Economics."

- University of North Carolina at Chapel Hill Kenan-Flagler Business School, Chapel Hill, NC
(<http://www.kenan-flagler.unc.edu>)

Sustainability and innovation/entrepreneurship integration: "Kenan-Flagler offers an MBA with a concentration in sustainable enterprise, which includes a Sustainability Immersion course, the capstone of the MBA. [...] The school's Center for Sustainable Enterprise offers CSE Consulting, an internship program that gives students real-world experience consulting with local companies. It also hosts a Sustainable Venture Capital Investment Competition, in which students present sustainable business plans in an attempt to win seed money."

- University of Notre Dame Mendoza College of Business, Notre Dame, IN
(<http://mendoza.nd.edu>)

Sustainability and innovation/entrepreneurship integration: "The school offers sustainability courses focused on topics like greening the supply chain and improving environmental accounting. Lecture series, like Ten Years Hence, bring speakers to campus to discuss how environmental concerns can be better incorporated into business practices."

- University of Virginia Darden Graduate School of Business, Charlottesville, VA
(<http://www.darden.virginia.edu>)

Sustainability and innovation/entrepreneurship integration: "Darden offers a second-year concentration on sustainability, including 19 courses that at least partially focus on environmental topics. Many of the school's signature overseas Global Business Experiences focus on sustainable companies."

- University of Wisconsin-Madison School of Business, Madison, WI (<http://bus.wisc.edu/mba>)

Sustainability and innovation/entrepreneurship integration: "The School of Business offers a certificate in Business, Environment and Social Responsibility, a 12-credit track administered in conjunction with the Nelson Institute of Environmental Studies."

3 Summary Overview by Country

| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
|--|--|--|---|--|--|
| Finland | | | | | |
| Aalto University http://www.aalto.fi/en/ | Strong sust. dev. goals as witnessed in its ISCN-GULF Sustainable Campus Charter Reports 2012 and 2013; intention to integrate sustainability into all teaching and research by 2015 and become Finland's leading sustainable university campus by 2020 | International Master's degree in "Creative Sustainability"; M.Sc. programme in "Innovative and Sustainable Energy Engineering": part of Nordic Five Tech (N5T), a strategic alliance of five Nordic technical universities | Corporate Environmental and Social Responsibility Research Group (CESR) | Aalto Start-Up Center (<i>generic offering</i>) Aalto Center for Entrepreneurship (ACE) (<i>generic offering</i>) | Collaboration with Impact Iglu, a project of Aalto Global Impact; collaboration with Peloton, an initiative for a low-carbon economy |
| Lappeenranta University of Technology (LUT) http://www.lut.fi/web/en | Key Performance Indicators (KPIs), a scorecard or other guiding principles refer to sustainability or entrepreneurship, e.g. certified ISO 14001 based environmental management system (EMS); strategy 2020 is based on sustainability; entrepreneurship is strongly related; WWF Green Office label; Professorship in "Environmental Economics and Management" and Department of Environmental Technology (at the LUT School of Energy Systems) | Master's programme in "Strategy, Innovation and Sustainability"; Doctoral Programme in "Environmental Technology"; Master's programme in "Energy Technology"; Courses in "Cleaner Technologies and Markets" and "Life-Cycle Costing of Investment Projects" (at LUT School of Business and Management) | Institute of Energy Technology ("LUT Energy"); Environmental Technology research areas include Lifecycle Modelling, Waste Management, Sustainable Community, Transition Management and Environment and Business | Green Campus Innovations Ltd. | Part of the International Sustainable Campus Network (ISCN) and Nordic Sustainable Campus Network (NSCN) |
| Turku University of Applied Sciences http://www.tuas.fi/en/ | | New modules in "Corporate Social Responsibility" (from 2016), "Resource Efficiency" (from autumn 2015); "Smart Sustainable Cities" (from 2016) | Research Group on "Sustainable Development and Corporate Responsibility"; Research Group on "Responsibility, Enabling Regulation and Entrepreneurship" | Start-up Journey, a summer programme organized by a student-based entrepreneurship network (<i>generic offering</i>) | Member of the Consortium on Applied Research and Professional Education (CARPE) which highlights Entrepreneurship, Social Innovation and Sustainability (amongst others) as focus themes |
| University of Jyväskylä https://www.jyu.fi/en/ | Centre for family business and entrepreneurship research; strong environmental management focus | Master's in "Corporate Environmental Management" | Research group in "Corporate Environmental Management" | "Yritystehdas" start-up centre (<i>generic offering</i>) | |
| Germany | | | | | |

| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
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| Bergische University Wuppertal http://www.uni-wuppertal.de/en/home.html | Research profiles "Natural Environment, Engineering and Safety" and "Business, Innovation and Economic Change | M.S.c. in "Sustainability Management" at the Department of Schumpeter School of Business and Economics | Research field "Green Entrepreneurship" | | Online platform "Green Entrepreneurship" |
| Flensburg University of Applied Sciences http://www.fh-flensburg.de/fhfl/homepage.html | Dr. Werner Jackstädt Centre for Entrepreneurship and Medium-sized Companies Flensburg (collaboration with the University of Applied Sciences Flensburg) | MINT-GREEN Entrepreneurship | | | International Green Entrepreneurship Forum (IGEF) |
| Hamburg University of Technology (TUHH) http://www.tuhh.de/alt/tuhh/startpage.html | Competency area "Green Technologies"; TUHH Sustainability Council; TUHH Startup Dock | Course modules: "Environmental Management and Corporate Responsibility"; "Business Model Generation & Green Technologies"; "Corporate Entrepreneurship & Green Innovation" | Research project "Academic Entrepreneurship in Synthetic Biology" | InnovationsCampus Green Technologies; Startup Consultant Green Technologies; Startup Prize Sustainability | StartersHub: Platform for Sustainable Entrepreneurship – collaboration between Hamburg-based universities and Babele.co (from April 2015) |
| Karlsruhe Institute of Technology (KIT) http://www.kit.edu/english/ | Sustainability and entrepreneurship are marked in university's mission statement | KIC-InnoEnergy's Master School; Master programmes related to the field of Eco-Innovation at the Hector School of Engineering and Management | Competence area "Technology, Culture, and Society" | | Partner of the German KIC-InnoEnergy Network |
| Leuphana University of Lüneburg http://www.leuphana.de/en/home.html | Sustainability is one of the basic principles that guides the activities of the university; sustainable guidelines noted in university's mission statement; Centre for Sustainability Management (CSM); Chair for Sustainability Management; Junior Professorship in "Social Entrepreneurship" | MBA in "Sustainability Management" General studies for all Bachelor students: Semester covers the first semester of all Bachelor study programmes and is mandatory for all first semester Bachelor students, independently of their degree course; module "Science bears Responsibility" accounts for 1/3 of a semester and covers sustainability issues and illustrates ethical behaviour; master studies: "Sustainability Sciences"; PhD: "Sustainability Sciences" | Research project: "Sustainability-oriented business model assessment" EU Tempus project ConSus – Connecting Science-Society Collaborations for Sustainability Innovations I4S (Innovation for Sustainability) EU project | Professional School's Start-up Service; Innovation Incubator of Lüneburg; Innovation Network "Sustainable SMEs" | As part of the I4S (Innovation for Sustainability) research project, under the leadership of The Academy of Business in Society (EABIS), Leuphana together with seven leading universities. |
| Technical University of Berlin (TU Berlin) http://www.tu-berlin.de/menue/home/parameter/en/ | Commitment to sust. development goals in its Environmental Report as also encapsulated in university vision and mission | Bachelor of "Sustainable Management" incl. courses like "Green Strategy" and "Sustainable Innovation"; Entrepreneurship Education within Climate KIC: Master's Degree "Climate Innovation" and Journey Summer School (also supports entrepre- | Research field: "Green Entrepreneurship & Innovative Business Models" | Support of climate protection start-ups by means of acceleration programmes at Green Garage | Core partner on Climate-KIC's master programme |

| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
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| | | neurship education at RWTH Aachen University as part of the wider Climate-KIC partner network) | | | |
| Technische Universität München ("Technical University Munich") (TU Munich) http://www.tum.de/en/ | Sustainability and entrepreneurship are highlighted in university's mission; Chair of "Corporate Sustainability" at the TUM School of Management | Master's in "Sustainable Resource Management"; Master's in "Consumer Affairs" (with specializations in "Sustainable Consumption" and "Consumer, Technology and Innovation (CTI)" including modules on "Advanced Topics in Innovation and Entrepreneurship"); Master's in "Environmental Engineering" | Recognition of sustainable entrepreneurship as an emerging research stream | unternehmerTUM Munich at TU Munich hosts incubation facilities on behalf of Climate-KIC. | UnternehmerTUM is a centre for innovation and business creation at TU Munich. |
| University of Applied Sciences Munich http://www.hm.edu/en/index.en.html | Targets for students to graduate with three integrated profiles: entrepreneurial, sustainable and intercultural; Professorship in "Sustainable Future Management"; Strascheg Center for Entrepreneurship | M.Sc. in "Business Engineering and Digital Technology Management" (Faculty of Business Administration) with an entrepreneurship and digitization focus; includes compulsory module with a strong sustainability emphasis: Module "Sustainable Technopreneurship – (Re-)Aligning Business, Strategy and Management of Technologies and Innovations towards Sustainability" Lecture series on "Social Innovation"; "Social Entrepreneurship seminar"; "Cleantech" courses (at the Strascheg Center for Entrepreneurship) | | Social Entrepreneurship Academy Joint effort by the Strascheg Center for Entrepreneurship and the start-up centres of LMU Munich, TU Munich and Bunderwehr University Munich to educate social entrepreneurs and social change-makers | |
| University of Hamburg http://www.uni-hamburg.de/index_e.html | Considers itself a "sustainable university", implementation of sust. dev. goals in research and teaching; interdisciplinary Center for a Sustainable University (KNU) | Master of International Business and Sustainability [MIBAS]; Course "Sustainable Business Formation, Business and Network Models" | Center for a Sustainable University (KNU) offers post-doc programme "Sustainable Future"; Project "A Review and Synthesis of Research and Practice on Sustainable Business Models" | Extracurricular workshop series on "Sustainable business model innovation" | Affiliate partner of the German KIC-InnoEnergy Network and Climate-KIC Germany; Network for Business Sustainability (NBS) |
| University of Kiel http://www.uni-kiel.de/index-e.shtml | Assistant Professorship in Entrepreneurship; Centre for Entrepreneurship (integrates efforts in | Lecture on "Social Entrepreneurship"; research seminars on, e.g. "Eco-preneurship" and "Evaluation of green technology ventures"; yooweedoo | Research focus on "Sustainable Entrepreneurship", "Social Entrepreneurship Education", | Consulting green ventures as part of services provided by the Centre for Entrepreneurship and Campus Business Box; | Campus Business Box's opencampus initiative organizes projects between students and industry or charities |

| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
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| | the area of social entrepreneurship); Kiel School of Sustainability | learning programme in social entrepreneurship; Changemaker MOOC "Social Entrepreneurship"; M.Sc. programmes in "Sustainability, Society and the Environment (SSE)" and "Environmental Management (EM)" | "Problem Solving-based Learning", "Action Learning", and "Teaching for Empowerment" | Ideas Competition yooweedoo focused on change projects; special section on energy and climate protection projects ("yooweedoo climate challenge") | |
| University of Oldenburg http://www.uni-oldenburg.de/en/ | "Sustainable Entrepreneurship" is a core topic of the university; Adjunct Professorship in "Innovation Management & Sustainability"; Oldenburg Centre for Sustainability Economics and Management (CENTOS) | Master cluster with 9 master programmes in sustainability, energy and environmental sciences; Master's programme "Sustainability economics and management (SEM)"; "Eco-Venturing" module: part of the University of Oldenburg's Master's course in "SEM" | Oldenburg Centre for Sustainability Economics and Management (CENTOS); research in areas such as innovation management, the generation of sustainability innovations, the creation of 'green' future markets, and eco-entrepreneurship | Sustainability-specific start-up support (coaching, mentoring etc.) in the fields of climate change, cleantech and energy; ideas competition for SMEs in the field of climate protection and adaptation | Collaboration with local enterprises, especially in the area of sustainable entrepreneurship; regional SME network initiative for climate protection and adaptation; partner in "StartUp4Climate", the first national initiative for a Green Economy |
| University of Stuttgart http://www.uni-stuttgart.de/home/index.en.html | | Offers different B.Sc. and M.Sc.-level engineering courses in clean-tech | Research in areas such as innovation mgmt., efficient energy consumption, new transport technologies | Technology Transfer Initiative (TTI) | Affiliate partner of the German KIC-InnoEnergy Network |
| Sweden | | | | | |
| Blekinge Institute of Technology (BTH) http://www.bth.se/eng | Strategic focus on "Applied IT and Innovation for Sustainable Growth"; BTH's sustainability plan puts a strong emphasis on the integration of sustainability; Center for Sustainable Product-Service System Innovation (SPIR-IT); Department of Strategic Sustainable Development | Master's in "Strategic Leadership towards Sustainability" (MSLS); Master's in "Sustainable Product-Service System Innovation" (MSPi); M.Sc. in Mechanical Engineering | Research areas include Strategic Sustainable Development (SSD); projects include "Modelling Social Sustainability for Sustainable Product Innovation (SDI)", "Sustainability Criteria in Concept Evaluation Methodology (SDI)" and "Green Charge Sydost"; re-search group "SDI - Sustainability-Driven Innovation", Department of Strategic Sustainable Development, School of Engineering; PDRL - Product | Blekinge Business Incubator (<i>generic offering</i>) | Most of the research and education, especially in the fields of sustainability and innovation, take place in collaboration with external partners |

| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
|--|---|---|--|---|--|
| | | | Development Research Lab, Mechanical Engineering | | |
| Chalmers University of Technology http://www.entrepreneur.chalmers.se | University vision "Chalmers for a sustainable future"; Chalmers Challenge Lab | All students take 7.5 credit hours' worth of classes in environment and sustainable development.; M.Sc. in "Design for Sustainable Development"; M.Sc. in "Sustainable Energy Systems"; M.Sc. in "Innovative and Sustainable Energy Engineering"; M.Sc. in "Innovative and Sustainable Energy Engineering" (part of N5T partnership); M.Sc. in "Entrepreneurship and Business Design" | Chalmers Initiative for Innovation and Sustainability Transitions (CIIST) | Chalmers Innovation offers to inventors and start-ups money and experience; Incubator (<i>generic offering</i>) in collaboration with the Chalmers School of Entrepreneurship | Core partner on Climate-KIC's master programme (first one in Sweden); as part of the Climate-KIC's Building Technologies Accelerator, Chalmers' 'living lab' brings together multidisciplinary teams across Europe to address the climate impact; Nordic Five Tech (N5T) partnership |
| KTH Royal Institute of Technology https://www.kth.se/en | | M.Sc. in "Innovative and Sustainable Energy Engineering": part of Nordic Five Tech (N5T), a strategic alliance of five Nordic technical universities; Module in "Innovations for Sustainable Development on a Local or Global Level": | | | |
| Linköping University (LiU) http://www.liu.se/?l=en | Division of Energy Systems, Department of Management and Engineering | M.Sc. in "Sustainability Engineering and Management"; M.Sc. in "Industrial Engineering and Management" with a specialization in "Environmental Innovation Management"; courses with sustainable innovation/ entrepreneurship focus in Engineering include Advanced Ecodesign, Resource Efficient Products and Environmentally Driven Business Development | Research in Product, Service, Innovation; Environmental Transitions and Management; Industrial Symbiosis; Resources 2.0 at the Division for Environmental Technology and Management, Department of Management and Engineering; relevant research projects: IQ – Intelligent Cleaning; Solvent free cleaning; Asia Eco-Design Electronics (AEDE) project; Megatech: Sustainable Business and Clean Technology Markets in Megacities | Cleantech Östergötland; LiU Innovation Office (<i>generic focus which includes cleantech</i>) | Different EU and Swedish Development Agency funded programmes with an integrated sustainability focus, e.g. MDPU – Environmental Driven Product Development; SIMPLE; Fördel MPU |
| Luleå University of Technology (LTU) http://www.ltu.se/?l=en | | M.Sc. in "Pervasive Computing and Communications for Sustainable Development"; Master's Programme in "Sustainable IT Systems"; | Research in "Green Technology"; areas of excellence in research and innovation | | Arctic Business Incubator at Luleå Science Park (<i>generic offering</i>) |

| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
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| | | BA-level course in "Sustainable Energy Systems" (the offerings are interdisciplinary in nature but there is no specific course content (e.g. module) focusing on entrepreneurship) | which include "Attractive Built Environment", "Renewable Energy", "Sustainable Transportation" | | |
| Swedish University of Agricultural Sciences (SLU) http://www.slu.se/en/ | Emphasizes its role in society; comprehensive viewpoint, interdisciplinary approach and applicability are keywords in SLU's research and teaching | Module in "Environmental Economics and Management" | | | |
| Umeå School of Business and Economics http://www.usbe.umu.se/english/ | USBE is in a process of integrating Sustainability standards and Responsible Management principles into the degree programmes; Certified ISO 14001 based environmental management system (EMS); PRME (Principles for Responsible Management Education) signatory; appointed a Council for Sustainable Development | Graduate and undergraduate level courses integrate sustainability content, including elective modules | RiseB – Research Institute for Sustainability and Ethics in Business; Research in Entrepreneurship with inputs on Sustainability | Students work with real life cases with sustainability focus – transfer of knowledge to companies | Appoints innovation ambassador for external co-operation |
| University of Gothenburg http://www.gu.se/english | The Global Innovation Challenges Program, Institute for Innovation and Social Change; different courses and programmes that include elements of sustainable development to varying degrees; learning outcomes need to meet sustainability criteria | Module in "Social Innovation and Entrepreneurship"; course in "Entrepreneurship in Life Science" (as part of the Master's Programme in "Applied Business Creation and Entrepreneurship in Biomedicine") | Ph.D. thesis focus (Medical Faculty) on how entrepreneurial support platforms can effect sustainable entrepreneurial learning and institutionalization in academia | GU Holding AB, the University's holding and portfolio company, focuses on developing start-ups sprung spun off from the University of Gothenburg (<i>generic offering</i>); "Difference Inc.", an initiative of the Sahlgrenska School of Innovation and Entrepreneurship, manages projects based on social needs. | The Institute for Innovation and Social Change collaborates with local, national and international actors. |
| Uppsala University http://www.uu.se/en | | Module in "Sustainable Entrepreneurship - Tools for Innovation, Collaboration and Change" | | The School of Entrepreneurship (<i>generic offering</i>) | Entrepreneurship Lab (<i>generic offering</i>) |
| United Kingdom | | | | | |
| Brunei University, London, England http://www.brunel.ac.uk | Centre for Research into Entrepreneurship, International Business and | M.Sc. in "Sustainability, Entrepreneurship and Design"; M.Sc. in "Climate Change Impacts and Sustainability" | | Business incubator and workshop space for business start-up and prototype development (as part of | Partners with Central Research Laboratory (CRL), of the Cathedral development group on start-up |

| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
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| | Innovation in Emerging Markets (CEIBIEM) | | | the M.Sc. in "Sustainability, Entrepreneurship and Design") | support. |
| Imperial College London, England http://www.imperial.ac.uk | | M.Sc. in "Sustainable Energy Futures"; M.A.(RCA)/M.Sc. in "Innovation Design Engineering (IDE)" | | Imperial Incubator | Core partner on Climate-KIC's master programme; collaboration on M.A./M.Sc. in "Innovation Design" with InnovationRCA, Royal College of Art |
| University of Exeter Business School, England http://business-school.exeter.ac.uk/opmba/about/ | | One Planet MBA: "Emerging Business Models", "Leveraging Opportunities in the Digital Economy", "Leveraging Opportunities in the Circular Economy" masterclasses; "The Entrepreneurial Mindset" and "Entrepreneurship, Intrapreneurship and Growing New Venture" modules | | "The One Planet Sustainability Challenge"; IGNITE Entrepreneur Support Unit; Green Unit | SETsquared Partnership: collaboration of five research-intensive universities – Bath, Bristol, Exeter, Southampton and Surrey – with student enterprise programmes; 15 entrepreneurs contribute to entrepreneurship modules annually |
| University of Manchester, England http://www.manchester.ac.uk | Strategic plan for 2020 (puts an emphasis on social responsibility and environmental sustainability); Manchester Institute of Innovation Research; Sustainable Consumption Institute (SCI); two separate professorships on "Innovation and Sustainability" and "System Innovation and Sustainability" | B.Sc. in "Management (Innovation, Sustainability and Entrepreneurship)"; M.Sc. "Innovation Management and Entrepreneurship (IME)"; undergraduate courses on "Sustainable Development for Electrical and Electronic Engineering", "Cases in Sustainable Development", "Interdisciplinary Sustainable Development" | "Innovation and sustainability" (Manchester Institute of Innovation Research); "Sustainable consumption" (at the Sustainable Consumption Institute) | Manchester Enterprise Centre; "Venture Further" business start-up competition at the Manchester Enterprise Centre; The University of Manchester Innovation Centre (UMIC) (<i>generic offering</i>) | Part of the I4S (Innovation for Sustainability) project, under the leadership of The Academy of Business in Society (EABIS) |
| University of Nottingham, England http://www.nottingham.ac.uk | Henley Centre for Sustainable Enterprise (HC4SE) | M.Sc. in "Sustainable Energy and Entrepreneurship"; Creative Energy Homes Project | | Green technology incubator | Nottingham Clean-Tech Centre |
| University of Reading, England http://www.reading.ac.uk | Henley Centre for Sustainable Enterprise (HC4SE), Henley Business School; the University has a strong focus on environmental policies, strategies, reports and plans (such as "Environmental Sustainability Strategy 2012–2017") | M.Sc. Entrepreneurship and Management with an optional module focused on "Social Enterprise"; M.Sc. in "Renewable Energy: Technology and Sustainability"; M.Sc. and PGD: "Design and Management of Sustainable Built Environments" | Associated research centres "Sustainability in the Built Environment" (cross-departmental) and "Technologies for Sustainable Built Environments (TSBE)" (at the School of Construction Management and Engineering) | Henley Centre for Entrepreneurship (HCfE), Henley Business School (<i>generic offering</i>) | Affiliate partner on Climate-KIC's master programme – through its M.Sc. in "Renewable Energy: Technology and Sustainability" |
| University of Strath- | | M.Sc. in "Environmental | | The Strathclyde | |

| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
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| <p>clyde, Glasgow, Scotland http://www.strath.ac.uk</p> | | Entrepreneurship” | | University Incubator Ltd. (<i>generic offering</i>) | |
| USA | | | | | |
| <p>Babson College F.W. Olin Graduate School of Business, Wellesley, MA http://www.babson.edu</p> | <p>Lewis Institute for Social Innovation; school’s mission: creation of social value in addition to education of entrepreneurial leaders; integration of social and economic sustainability; ethical and sustainability issues are woven into the core curriculum; Babson Sustainability Office</p> | <p>Signature Learning Experience (SLE): cross-disciplinary presentations on real-world issues; MBA programme modules on “Environmental Entrepreneurship” or “Social Entrepreneurship”; concentration of "Environmental Sustainability" in undergraduate programme; offers a range of graduate and undergraduate level green-themed classes</p> | | <p>John E. and Alice L. Butler Venture Accelerator Program; Hatcheries; Lewis Institute’s Social Innovation Lab</p> | <p>Tri-campus Sustainability Certificate: Wellesley, Olin, and Babson colleges collaborate to integrate business, engineering, and the liberal arts in the service of environmental sustainability; Summer Venture Program;</p> |
| <p>California Institute of Technology (Caltech), Pasadena, CA http://www.caltech.edu</p> | <p>Resnick Sustainability Institute</p> | <p>E/ME 105 ab. Product Design for the Developing World</p> | <p>Research areas at the Resnick Institute include Electricity Production, Fuel Production, Storage, Distribution, Energy Efficiency and Greening Industry; it supports related research efforts at the following centres at Caltech: Powering the Planet Center for Chemical Innovation (CCI Solar); Center for Bioinspired Engineering; Joint Center for Artificial Photosynthesis; Light-Material Interactions in Energy Conversion (LMI-EFRC)</p> | <p>FLOW 2.0 Program, which includes two tracks: Ready to Commercialize (for ventures closer to launch) and Transformational Idea Award (for pre-commercial research); Resnick Sustainability Institute's Resonate Awards; Sustainability Innovation Student Challenge Award (SISCA)</p> | <p>CTEE – Caltech-Taiwan Energy Exchange; Corporate Partnerships</p> |
| <p>Massachusetts Institute of Technology (MIT), Sloan School of Management, Cambridge, Massachusetts http://mitsloan.mit.edu</p> | <p>Sustainability Initiative; Energy Conference; Clean Energy Prize; Martin Trust Center for Entrepreneurship</p> | <p>Sustainability Certificate; Certificate in Entrepreneurship & Innovation (specialized tracks of study within the MBA/Master’s degree programme); Sustainable Business Lab (S-Lab) course; Sustainability Capstone class; MIT Sloan Social Impact Fellowship (SSIF)</p> | <p>Center for Energy & Environmental Policy Research; MIT Energy Initiative (MITEI); the MITEI interdisciplinary research programme focuses on transformational technologies, global systems and tools for change</p> | <p>MIT Global Founders' Skills Accelerator (MIT GFSA); MIT Global Startup Labs (GSL)</p> | <p>Sustainability Initiative partners with leaders from the corporate, NGO, government, and hybrid sectors</p> |

| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
|--|---|--|--|---|--|
| Pinchot University, (formerly BGI – Bainbridge Graduate Institute), Seattle, Washington http://bgi.pinchot.edu | Pinchot University focuses on sustainable business; central purpose: to educate leaders prepared to change business for good; quadruple bottom line approach: people, planet, profit, and purpose | MBA in “Sustainable Systems” and MBA in “Sustainable Business”; offers rotating graduate certificates that focus specifically on different fields of sustainability; combines traditional instruction and course work with team-based applied projects, research, and field experience to solve real-world business challenges | | Fledge LLC (“conscious company” incubator) | In year two, students participate in consulting teams that serve an external client |
| Presidio Graduate School, San Francisco, California http://www.presidio.edu | Presidio Graduate School focuses solely on sustainable management education; it embeds sustainability in every course | Master’s degrees in the following formats: MBA, MPA, and Dual MBA/MPA programme in “Sustainable Management”; JD/MBA with University of California Hastings College of the Law; curriculum integrates real-world sustainability projects with clients as part of an Experiential Learning programme. | Research & Case Development Program supports applied research and case study development. | | Field study partnerships in sustainable energy sector; in each Experiential Learning course, student teams partner with external organizations to create a custom-made project based on the specific needs of their partner; projects at overseas partner locations; corporation-sponsored innovation projects |
| Santa Clara University, Santa Clara, California http://www.scu.edu | Miller Center for Social Entrepreneurship: social entrepreneurship accelerator and mentorship; impact investing | Global Social Benefit Fellows programme: Frugal Innovation Lab at School of Engineering | The Willem P. Roelandts and Maria Constantino-Roelandts Grant Program | GSBI Accelerator (for social entrepreneurs preparing to scale) and GSBI Online (for social entrepreneurs validating their model) programmes | The Miller Center for Social Entrepreneurship draws on social entrepreneurs with a focus on disadvantaged communities and mentors that are part of the Silicon Valley ecosystem |
| Stanford University, Stanford, California http://www.stanford.edu | TomKat Center for Sustainable Energy; Center for Social Innovation (at Stanford Graduate School of Business); d.school – Hasso Plattner Institute of Design | Stanford MBA Program social impact curriculum incl. options to take courses from other Stanford schools; Social Innovation Study Trips; joint MS Environment and Resources/MBA degree programme (GSB and School of Earth Sciences); Public Management and Social Innovation Programs (PM/SI); Impact Lab | Stanford Social Innovation Review (SSIR) (published by the Stanford Center on Philanthropy and Civil Society); Research on the Environment and Social Entrepreneurship at GSB Center for Social Innovation; PhD in “Environment and Resources” at Emmett Interdisciplinary Program in Environment and Resources (E-IPER) | StartX | Different student clubs (Energy Club, Social Innovation Club, Sustainable Business Club) |
| UC Berkeley, Berkeley, California | Sustainability is built into the core | Broad range of classes in sustainability and corpo- | Center for Responsible | Cleantech to Market (C2M) at Haas Busi- | Center for Information Technology |

| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
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| http://www.berkeley.edu | values of Haas School of Business; commitment to the Principles of Responsible Management Education (PRME); UC Berkeley Office of Sustainability; Institute of Business and Social Impact (IBSI) which includes the Center for Responsible Business (CRB) and the Global Social Venture Competition (GSVC); Berkeley Center for Green Chemistry (BCGC) | rate responsibility as part of its MBA programme; student-led Haas Impact Investing Network (HIIN) and Haas Socially Responsible Investment (SRI) Fund; Social Sector Solutions (S3) experiential learning courses, Social Lean Launchpad, Social Lean Launchpad, Sustainable Products & Solutions (SPS) Program; Berkeley Center for Green Chemistry (BCGC) which includes courses on "Greener Solutions", "Green Chemistry: An Interdisciplinary Approach to Sustainability" and "Green Chemistry and Sustainable Design"; Energy & Resources Group (ERG) | Business' research in sustainable enterprise, incl. Moskowitz Research Program on foundations and trends in the socially responsible investing industry; Berkeley Center for Green Chemistry (BCGC); Energy & Resources Group (ERG) | ness School's Energy Institute; SkyDeck Berkeley start-up accelerator; Big Ideas@Berkeley contest incl. categories on "Clean & Sustainable Energy Alternatives", "Food System Innovations" and "Information Technology for Society" | Research in the Interest of Society (CITRIS), incl. the CITRIS Sustainable Infrastructures Initiative and the Foundry @ CITRIS; California Institute for Energy and Environment (CIEE); course "Strategic and Sustainable Business Solutions" in collaboration with industry; Social Impact Speaker Series |
| UC Santa Barbara, Santa Barbara, California http://www.ucsb.edu | "Eco-Entrepreneurship" is a core topic at the Bren School of Environmental Science and Management; Professorship in "Corporate Environmental Management"; specialization in Corporate Environmental Management (CEM) | Master of "Environmental Science and Management" (MESM); modules in "Eco-Entrepreneurship" and "Corporate Environmental Management"; the Bren School and the Technology Management Program at the College of Engineering allow for elective courses to be taken across programmes. | The Bren School Strategic Environmental Research Initiative (SERI) | UCSB Office of Technology & Industry Alliances (TIA) Startup Support Program; UCSB New Venture Competition (<i>generic offering</i>) | Faculty Impact: Collaborative faculty policy work - consulting and advisory roles; Capstone Project/Module in "Corporate Environmental Management" or "Eco-Entrepreneurship"; Eco-Entrepreneurship Advisory Council |

4 Detailed Overview by Country

4.1 Germany

| Higher Education Institution: | Programme or Activity (including Description/ Raison d'être): | | | | |
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| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
| Bergische University Wuppertal http://www.uni-wuppertal.de/en/home.html | Two of the six cross-departmental/ -disciplinary teaching and research profiles of the university are "Natural Environment, Engineering and Safety" and "Business, Innovation and Economic Change" (cf. http://www.uni-wuppertal.de/en/university-campus/mission-statement/teaching-and-research-profiles.html) | The Department of Schumpeter School of Business and Economics offers an M.S.c. of Sustainability Management with compulsory modules, "Economic and Institutional Change", "Sustainable Transition Management" and elective optional module "Development of an Entrepreneurial Personality". (cf. http://www.zsb.uni-wuppertal.de/studieninfos/studienangebot/master/sustainability-management-msc.html ; http://www.zsb.uni-wuppertal.de/fileadmin/zsb/Studieninfo/Master/MSc_Sustainability.pdf – in <i>German only</i>) Example of a relevant M.S.c. course: "Business models of sustainable transitions" (cf. https://www.wusel.uni-wuppertal.de/qisserver/rds?state=verpublish&status=init&vmfile=no&publishid=52962&moduleCall=webInfo&publishConfFile=webInfo&publishSubDir=veranstaltung – in <i>German only</i>) | Research field "Green Entrepreneurship" (cf. http://www.nachhaltigkeitsmanagement.uni-wuppertal.de/index.php?id=4194 – in <i>German only</i>) | | The online platform "Green Entrepreneurship" supports clean technologies with the help of innovative start-ups. The platform is a collaboration between the Institut für Gründungs- und Innovationsforschung (IGIF) (engl. Institute for Entrepreneurship and Innovation Research) and the Wuppertal Institute for Climate, Environment, Energy (WI) (cf. http://www.green-e.uni-wuppertal.de/index.php?id=2971 – in <i>German only</i>). The online platform offers information on the rapid creation and development of innovative ventures. E.g., in the section "Materials" there are documents and presentations on topics in the area of cleantech and entrepreneurship. The platform's goal is to incentivize |

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| | | | | | a cross-disciplinary exchange of ideas and to develop the field of clean technologies by means of innovative start-ups. Additional scientific collaborations and publications in this field are welcome. |
| Flensburg University of Applied Sciences http://www.fh-flensburg.de/fhfl/homepage.html | Dr. Werner Jackstädt Centre for Entrepreneurship and Medium-sized Companies Flensburg is a co-operation between the Flensburg University of Applied Sciences and the University of Flensburg. (cf. http://www.jackstaedt-flensburg.de) | MINT-GREEN Entrepreneurship This is an optional module in different university courses (open to all students). (cf. http://www.jackstaedt-flensburg.de/ueberuns/jec/lehrangebote-rund-um-das-thema-gruendungen/) This programme's offering targets mathematics, IT, natural sciences and technology students as well as "green" degree programmes. | | | International Green Entrepreneurship Forum (IGEF) (cf. http://www.jackstaedt-flensburg.de/wp-content/uploads/2014/09/2014_IGEF_-_Flyer.pdf) The IGEF is a network forum for partners from science and research (students, researchers and research institutes), private enterprise (entrepreneurs, established companies and investors) and "the public" (politics and special interest organizations) to combine their efforts to improve and promote the growth of green economy and green entrepreneurship through genuine projects. |
| Hamburg University of Technology (TUHH) http://www.tuhh | The competency area of "Green Technologies" encompasses the fields of research Renewable Energies, | Different entrepreneurship courses, workshops and programmes are offered via TUHH Startup Dock for engineers (including environmental engineers). Course modules: "Environmental Management and Corporate | Research project "Academic Entrepreneurship in Synthetic Biology" | InnovationsCampus Green Technologies (ICGT) (cf. http://intranet.tuhh.de/aktuell/pressemitte) | StartersHub: Platform for Sustainable Entrepreneurship – collaboration between Hamburg-based universities and Babele.co (from April 2015) |

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| .de/alt/tuhh/startpage.html | <p>Systems - Storage - Networks, and Water and Environmental Engineering. To further strengthen the competency area Green Technologies in the long-term, the university leadership has decided, from 2015, to start developing a new institute dedicated to "Energy Systems".</p> <p>(cf. http://www.tuhh.de/tuhh/uni/service/nachhaltige-entwicklung.html; https://www.tuhh.de/tuhh/uni/informationen/struktur-und-entwicklungsplan/forschung-an-der-tuhh/buendelung-der-aktivitaeten.html – <i>in German only</i>)</p> <p>TUHH Sustainability Council</p> <p>(cf. http://www.tuhh.de/tuhh/uni/service/nachhaltige-entwicklung.html)</p> | <p>Responsibility"; "Business Model Generation & Green Technologies"; "Corporate Entrepreneurship & Green Innovation"</p> <p>(cf. http://www.tuhh.de/startupdock/education.html)</p> | | <p>ilung_einzeln.php?id=8478&Lang=de; https://www.exist.de/exist-gruendungskultur/gruenderhochschule/projekte2013/02187/index.php – <i>in German only</i>)</p> <p>In the area of start-up support, TUHH and the TuTech GmbH are finalizing a new innovation centre dedicated to the development of green technologies. The "InnovationsCampus Green Technologies" connects, in the competency area of "Green Technologies", basic research with real-life applications. It strives to be a hub for R&D, technology transfer and collaborations with industry. Focus areas include energy efficiency, tidal energy, integrated waste management,</p> | |

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| | <p>entwicklung/nachhaltige-tuhh/nachhaltigkeitsrat.html; http://www.hamburg.de/contentblob/4308730/data/fg68-tuhh.pdf)</p> <p>The cross-departmental Sustainability Council advises the Academic Senate. It acts as an internal think tank and ensures internal networking with regards to sustainable development. It makes recommendations to the university president.</p> <p>The TUHH Startup Dock (http://www.startupdock.de) is a collaboration of the Institute of Entrepreneurship (TIE) and the Centre for Innovation & Entrepreneurship</p> | | | <p>environmental technologies, and green logistics or related.</p> <p>Startup Consultant "Green Technologies"</p> <p>(cf. http://www.tuhh.de/startupdock/startupdock/team.html). This role is part of TUHH Startup Dock and advises start-ups with a focus on sustainable entrepreneurship.</p> <p>Startup Prize "Sustainability"</p> <p>(cf. http://www.gruenderpreis-nachhaltigkeit.de)</p> <p>The Startup Prize "Sustainability" is a national award for exceptional founders with a scientific background. It is</p> | |

| Higher Education Institution: | Programme or Activity (including Description/ Raison d'être): | | | | |
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| | (ZIE). It support TUHH students and alumni interested in setting up their own enterprise. | | | awarded for exemplary achievements in the development of innovative and technology-orientated business ideas whose implementation results in a more efficient use of resources or reduction of carbon emissions. | |
| Karlsruhe Institute of Technology (KIT) http://www.kit.edu/english/ | Mission Statement of KIT: "In research and education, KIT assumes responsibility for contributing to the sustainable solution of the grand challenges that face the society, industry, and the environment. For this purpose, KIT uses its financial and human resources with maximum efficiency. [...] The development of viable technologies and their use in industry and the | Some Master programmes related to the field of Eco-Innovation at the Hector School of Engineering and Management: <ul style="list-style-type: none"> • Master Program in Energy Engineering and Management (EEM) (cf. http://hector.idschools.kit.edu/energy_engineering_management.php) • Master Program in Green Mobility Engineering (cf. http://hector.idschools.kit.edu/green_mobility_engineering.php) | Competence area "Technology, Culture, and Society" <ul style="list-style-type: none"> • Cultural Heritage and Dynamics of Change • Business Organization and Innovation • Interaction of Science and Technology with Society (cf. http://www.kit.edu/research/5360.php) | | As a partner of the German KIC-InnoEnergy Network , KIT collaborates with the KIC-InnoEnergy MasterSchool. (cf. http://www.kic-innoenergy.com/education/master-school/our-partner-universities/ ; https://www.tu9.de/graduate/master.php) KIT sensitizes its students to climate protection and sustainability in its degree course offerings. KIC-InnoEnergy's Master |

| Higher Education Institution: | Programme or Activity (including Description/ Raison d'être): | | | | |
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| | <p>society are the cornerstones of KIT's activities. KIT supports innovativeness and entrepreneurial culture in various ways. Moreover, KIT supports a culture of creativity, in which employees and students have time and space to develop new ideas.”</p> <p>(cf. http://www.kit.edu/kit/english/15036.php)</p> | | | | <p>School aims at creating the future game changers of the energy field through integration of technical training with innovation and entrepreneurship in a learning by doing approach.</p> <p>Within all the two years M.Sc. programmes offered, the student will receive classes in at least two different European Universities, specialising in one of these sustainability fields:</p> <ul style="list-style-type: none"> • Energy Technologies, which offers an interdisciplinary approach; • Clean Coal Technologies; • Smart Cities, • Renewable Energy (Photovoltaic, CSP, Tidal, Wind); • Environmental Pathways for Sustainable Energy Systems; • Smart Electrical Networks and Systems; • Innovation in Nuclear Energy <p>(cf. http://www.best.eu.org/student/career/companyProfileView.jsp?company=bqh38pd)</p> |

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| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
| <p>Leuphana University of Lüneburg</p> <p>http://www.leuphana.de/en/home.html</p> | <p>University mission:</p> <ul style="list-style-type: none"> • Sustainable university <p>Through its education and research, Leuphana contributes to the sustainable development of society. Leuphana fosters competencies in dealing with complexity, problem-solving in an interdisciplinary manner, engaging in responsible and self-directed learning, developing a readiness and willingness to take on social responsibility or shaping the future in a sustainable manner.</p> <ul style="list-style-type: none"> • Proactive university <p>Leuphana fosters the development of responsible and proactive individuals who demonstrate the</p> | <p>MBA in "Sustainability Management"</p> <p>(cf. http://www.leuphana.de/en/study/professional-master/mba-sustainability-management.html)</p> <p>The University of Lüneburg sensitizes its students to climate protection and sustainability in conjunction with business and entrepreneurship education, especially in its MBA in "Sustainability Management".</p> <p>The programme, unlike at other universities, is being run not out of the business school but out of the University of Lüneburg's Centre for Sustainability Management (CSM).</p> <p>As opposed to other similar MBA programmes, the theme of sustainability has been integrated into and woven throughout the curriculum and different subject areas.</p> <p>The entrepreneurship module provides an entry-level overview of business plan conceptualization, financial planning and communication (cf. http://www.leuphana.de/studium/berufsbegleitende-master/mba-sustainability-management/curriculum.html).</p> | <p>Research project: "Sustainability-oriented business model assessment"</p> <p>(cf. http://www.leuphana.de/en/research/knowledge-transfer/research-and-development/nachhaltige-geschaeftsmodelle.html)</p> <p>EU Tempus project ConSus – "Connecting Science-Society Collaborations for Sustainability Innovations"</p> <p>(cf. http://fox.leuphana.de/portal/de/projects/projects%285796c835-6975-49ee-9df9-fc613043633e%29.html)</p> <p>I4S (Innovation for Sustainability) is a</p> | <p>Start-up Service</p> <p>(cf. http://www.leuphana.de/en/topics/economy/start-up.html)</p> <p>The Professional School's Start-up Service assists all current and prospective start-ups in their entrepreneurial pursuits and receives support from a great number of experts from the University.</p> <p>Innovation Incubator of Lüneburg</p> <p>(cf. http://www.leuphana.de/en/current-affairs/publications/leuphana-magazine/cover-stories/incubator-success.html)</p> <p>Leuphana University of Lüneburg's</p> | <p>As part of the I4S (Innovation for Sustainability) project, under the leadership of The Academy of Business in Society (EABIS), Leuphana together with seven leading universities (Copenhagen Business School, Nyenrode Business Universiteit, University of Exeter, University of Manchester, Erasmus University Rotterdam, University of Cape Town and Vlerick Leuven Ghent Management School) and their corporate partners collaborate to study sustainability-driven innovation (SDI) – which is understood as innovation not only directed at economic gains but also at positive ecological and social effects.</p> |

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| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
| | <p>creativity and thoughtfulness as well as the willingness and ability to creatively shape society. Leuphana contributes significantly to the solution of social problems through research, education, continuing education, and academic services.</p> <p>(cf. http://www.leuphana.de/en/about-us/profile/mission-statement.html)</p> <p>Centre for Sustainability Management (CSM)</p> <p>(cf. http://www.leuphana.de/en/institutes/csm.html)</p> <p>The Centre for Sustainability Management is a</p> | | <p>project funded by the European Union in support of its strategic commitment to 'smart, sustainable and inclusive growth'.</p> <p>(cf. http://www.leuphana.de/institute/csm/forschung-projekte/i4s-innovation-for-sustainability.html)</p> | <p>Innovation Incubator of Lüneburg is a collaborative project with the German Federal State of Lower Saxony. It will examine sustainable services and business ideas that are best suited to create new companies and jobs in the former Administrative District of Lüneburg.</p> <p>The "Innovation Network Sustainable SMEs" supports small and medium-sized enterprises (SMEs) in the convergence region Lüneburg to innovate for sustainability. It is a project within the EU major project Innovation Incubator at Leuphana.</p> <p>(cf. http://www.leuphana.de/en/institutes/csm/research-projects/innovation-network-sustainable-smes.html)</p> | |

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| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
| | <p>centre of excellence in research, teaching and academic training as well as knowledge transfer in the fields of entrepreneurial sustainability management, corporate social responsibility (CSR) and social entrepreneurship.</p> <p>The Chair for Sustainability Management at the CSM is an internationally oriented professorship leading in research, continuing education and knowledge transfer in the field of corporate sustainability management.</p> <p>(cf. http://www.leuphana.de/en/institute/csm/about-the-csm/nachhaltigkeitsmanagement.html)</p> | | | | |

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| <p>Technical University of Berlin (TU Berlin)</p> <p>http://www.tu-berlin.de/menue/home/parameter/en/</p> | <p>TU Berlin's efforts in and commitment to sustainable development goals are highlighted in its Environmental Report. It highlights the university's efforts to integrate sustainability in its research and teaching</p> <p>(cf. http://www.arbeitsumweltschutz.tu-berlin.de/fileadmin/abt2/Umweltberichte/Umweltberichte_2011-2020/Umweltbericht_2013.pdf).</p> <p>University vision: "Solutions for Societal Challenges"</p> <p>One of key application areas is "Energy Systems and Sustainable Resource Management"</p> <p>(cf. http://www.tu-berlin.de/menue/ueber_die_tu_berlin/profil_geschichte/parameter/en/)</p> <p>University mission: "Our goal is to</p> | <p>Bachelor of Sustainable Management since 2013/14 including courses like "Green Strategy" and "Sustainable Innovation"</p> <p>(cf. http://www.nama.tu-berlin.de/menue/startseite/; http://www.nama.tu-berlin.de/fileadmin/f8_nama/Modulkatalog_NachhaltigesManagement.pdf – <i>in German only</i>)</p> <p>Entrepreneurship Education within Climate KIC:</p> <p>Master's Degree "Climate Innovation" including courses like "Prototyping Eco-Innovation"</p> <p>(cf. http://www.entrepreneurship.tu-berlin.de/menue/masterprogramme_qualifizierung/parameter/en/)</p> <p>The Journey Summer School: 5-week programme developing business concepts that tackle the challenges of climate change adaptation and mitigation</p> <p>(cf. http://www.climate-kic.org/for-students/summer-school/)</p> <p>Also supports entrepreneurship education at RWTH Aachen University as part of the wider Climate-KIC partner network.</p> | <p>Research field: "Green Entrepreneurship & Innovative Business Models"</p> <p>The global environmental challenges and the drive towards sustainability force enterprises to adjust and innovate their business models. The research is focused on the creation and future development of innovative business models on energy market. Climate-KIC Project "Energy Atlas Berlin" practically applies and verifies the findings of study.</p> <p>(cf. http://www.entrepreneurship.tu-berlin.de/menue/research_publications/research_fields/green_entrepreneurs/hip_innovative_business_models/parameter/en/)</p> | <p>Support of climate protection start-ups by means of acceleration programmes at Green Garage through the Centre for Entrepreneurship and Climate-KIC</p> <p>(cf. https://www.entrepreneurship.tu-berlin.de/fileadmin/f22_entrepreneurship/Partner/131118_Vorstellung_CfE_DE_01.pdf)</p> | <p>TU Berlin is a university core partner on Climate-KIC's master programme.</p> <p>(cf. http://www.climate-kic.org/national-centres/berlin-germany/partners/)</p> <p>The Master's level degree programme in "Climate Innovation" and the related summer school programme for Master's or PhD level students (Academy of Climate Innovation – The Journey) takes place in collaboration with Climate-KIC (Climate Knowledge and Innovation Community).</p> <p>(cf. http://www.entrepreneurship.tu-berlin.de/menue/masterprogramme_qualifizierung/climate_kic/; http://www.climate-kic.org/for-students/summer-school/)</p> |

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| Technische Universität München ("Technical University Munich") (TU Munich) http://www.tum.de/en/homepage/ | <p>University mission:</p> <p>1) Servant of an Innovative Society: Embracing the basic understanding that its duty is to serve society, the Technische Universität München is committed to innovative progress in those fields of science that promise sustainable improvements in the ways people live and live together. Out of its sense of responsibility for future generations, it has established the following interdisciplinary research areas: Health & Nutrition - Energy & Natural Resources - Environment & Climate - Information & Communications - Mobility & Infrastructure.</p> <p>5) Entrepreneurial Thinking and Action: With its guiding idea of "the Entrepreneurial University, the</p> | <p>M.Sc. in "Sustainable Resource Management" (cf. http://www.forst.wzw.tum.de/index.php?id=20&L=1)</p> <p>The international Master of Science Programme 'Sustainable Resource Management' prepares students for professional work in the various fields of resource management. They will learn important concepts and techniques for sustainable management and acquire special management skills. The programme includes important leadership and management skills such as rhetoric, project management and conflict facilitation.</p> <p>Master's in "Consumer Affairs" (cf. https://www.mca.wi.tum.de/; https://www.mca.wi.tum.de/index.php?id=13)</p> <p>The Master's programme in "Consumer Affairs" at the TUM School of Management focuses on "Sustainable Consumption" and "Consumer, Technology and Innovation (CTI)" and has an interdisciplinary focus involving faculties from other departments. CTI includes modules on "Advanced Topics in Innovation and Entrepreneurship".</p> <p>Master's in "Environmental Engineering" (cf. https://portal.mytum.de/studium/studiengaenge_en/umweltingenieurwesenmaster?ignore_redirection=yes)</p> <p>The Master's programme in "Environmental Engineering" addresses issues such as resource utilization, energy generation, construction of settlements and infrastructure and transportation. It offers the inclusion of a limited number of courses from other study programmes of TUM (incl. entrepreneurship content).</p> | <p>Sustainable entrepreneurship is an emerging research stream at the nexus of sustainable development and entrepreneurship. TU Munich has recognized sustainable entrepreneurship as an increasing research stream: "Despite the promising approach of driving the change towards more sustainable lifestyles, the academic discourse on sustainable development within the mainstream entrepreneurship literature has been sparse."</p> | <p>unternehmerTUM Munich at TU Munich hosts incubation facilities on behalf of Climate-KIC. (cf. https://www.unternehmertum.de/index.html)</p> <p>UnternehmerTUM helps established companies and start-ups to utilize challenges such as climate change, Energiewende, diminishing resources for the purpose of new business creation.</p> | <p>UnternehmerTUM is a centre for innovation and business creation at TU Munich. It is an affiliate partner of the German Climate-KIC Network.</p> <p>The summer school takes place in collaboration with Climate-KIC. (cf. http://www.unternehmertum.de/announcement/view/67165/climate-kic-accelerator-neue-chance-fuer-cleantech-start-ups; http://www.climate-kic.org/national-centres/berlin-germany/greengarage/; http://www.climate-kic.org/for-students/summer-school/)</p> |

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| University of Applied Sciences Munich http://www.hm.edu/en/index.en.html | <p>Mandate: The university targets for students to graduate with three integrated profiles: entrepreneurial, sustainable and intercultural.</p> <p>(cf. http://www.hm.edu/studierende/mein_studium/studienprofil/index.de.html - <i>in German only</i>)</p> <p>Professorship in "Sustainable Future Management"</p> <p>(cf. http://w3bw-n.hm.edu/die_fakultaet/ansprechpersonen/professoren_2/isenmann/isenmann_ralf.de.html)</p> <p>Strascheg Center for Entrepreneurship</p> <p>(cf. http://www.sce.de/entrepreneurship.html)</p> | <p>M.Sc. in "Business Engineering and Digital Technology Management" (Faculty of Business Administration)</p> <p>(cf. http://www.bwl.hm.edu/masterstudiengaenge/studiengaenge/master_bwl/master_betriebswirtschaft/business_engineering_and_digital_technology_management/einstiegsseite_2.de.html)</p> <p>The M.Sc. programme primarily focuses on entrepreneurship and digitization. Idea is to systematically link the subjects of technology and innovation management on the one hand and sustainability management/CSR on the other hand. The M.Sc. includes a compulsory sustainability-orientated module:</p> <p>Module "Sustainable Technopreneurship – (Re-)Aligning Business, Strategy and Management of Technologies and Innovations towards Sustainability"</p> <p>The new module "Sustainable Technopreneurship" focuses on the following elements: to rethink basic assumptions of business administration & management theory; and to redesign business models, processes, products & services while contributing to a viable future, helping mainstream sustainable businesses.</p> <p>Lecture series on "Social Innovation" ; "Social Entrepreneurship" seminar; "Sustainable Management" subject; "Cleantech" courses; practice project "Sustainable Management" (at the Strascheg Center for Entrepreneurship)</p> <p>(cf.</p> | | <p>Social Entrepreneurship Academy</p> <p>(cf. http://www.sce.de/se.html)</p> <p>Together with the start-up centres of the three other large Munich-based HEIs – LMU Munich, TU Munich and Bunderwehr University Munich – the Strascheg Center for Entrepreneurship created the Social Entrepreneurship Academy. Goal is to educate social entrepreneurs and social changemakers.</p> | |

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| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
| | - in German only) | https://www.hm.edu/allgemein/hochschule_muenchen/nachhaltigkeit_1/lehre_1/informationen_fuer_studierende/lehrveranstaltungen/lehrveranstaltungen_1.de.html ; http://www.sce.de/ringvorlesung/ ; http://www.sce.de/lehrveranstaltungen.html) | | | |
| University of Hamburg http://www.uni-hamburg.de/index_e.html | <p>Sustainable University: The University of Hamburg is devoted to sustainable science and scholarship and its schools have made great strides towards sustainability in research and teaching.</p> <p>The interdisciplinary Center for a Sustainable University (KNU) is a platform for the development and review of new academic procedures and methods on questions of sustainability.</p> <p>(cf. https://www.nachhaltige.uni-hamburg.de/en.html; http://www.uni-hamburg.de/uhh/prof</p> | <p>Master of International Business and Sustainability [MIBAS] (cf. http://www.wiso.uni-hamburg.de/master/mibas/mibas/)</p> <p>Course "Sustainable Business Formation, Business and Network Models": Bachelor-level course introducing the basics of business plans and business models with a focus on sustainable entrepreneurship challenges</p> <p>(cf. https://www.stine.uni-hamburg.de/scripts/mgrqispi.dll?APPNAME=CampusNet&PRGNAME=COURSEDETAILS&ARGUMENTS=-N000000000000001,-N000348,-N0,-N355515855304260,-N355515855357261,-N0,-N0,-N3,-A4150504E414D453D43616D7075734E6574265052474E414D453D414354494F4E26415247554D454E54533D2D417066616A545074792D2E30626B5975685A3736797945583261386D56354D7946764861754B7768333233526677495733524168725432485231556E556E644F652E73696C30726D6E746549416D35344C726C6C554F666F4362736B735A6432794645316657507853596C75644B7074617653774B325457466C536C5764373D3D – in German only)</p> | <p>The academic core of the Center for a Sustainable University (KNU) is the post-doc programme "Sustainable Future". This programme offers fellowships to highly qualified young scholars after they have received their doctorates, allowing them to conduct independent and interdisciplinary research projects related to sustainability.</p> <p>(cf. http://www.nachhaltige.uni-hamburg.de/postdoc-kolleg.html)</p> <p>Project "A Review and Synthesis of</p> | <p>Extracurricular workshop series on "Sustainable business model innovation": The workshop series is open to university and non-university members. Tools and best practices in sustainable business modelling are presented and tested. Participants are, e.g., businesses from Hamburg and Berlin.</p> <p>(cf. http://ssbmg.com)</p> | <p>Affiliate partner of the German KIC-InnoEnergy Network and affiliate partner of Climate-KIC Germany</p> <p>Climate-KIC Germany: Start-up academies and acceleration of start-ups in climate-relevant topics. Concrete activities in the context of the KIC-InnoEnergy Network are not apparent (cf. http://www.uni-hamburg.de/forschung/forschungsfoerderung/eu/kic.html).</p> <p>Network for Business Sustainability (NBS) (cf. http://nbs.net)</p> <p>Membership in international research practice network which includes hundreds of institutional partners.</p> |

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| | il/nachhaltigkeit_e.html) | | <p>Research and Practice on Sustainable Business Models"</p> <p>International research-practice collaboration to evaluate the state of the art in the field of sustainable business models; transfer- and tool-oriented; funded by the Network for Business Sustainability (NBS), Johannesburg, South Africa.</p> <p>(cf. http://nbs.net/wp-content/uploads/CFP_Business-Model-Innovation_final-26.11.141.pdf)</p> | | |
| <p>University of Kiel http://www.uni-kiel.de/index-e.shtml</p> | <p>An Assistant Professorship in Entrepreneurship offers lectures and seminars on sustainable entrepreneurship (cf. http://www.entrepren</p> | <p>The Assistant Professorship in Entrepreneurship offers a lecture on "Social entrepreneurship" and research seminars on, e.g., "Evaluation of green technology ventures" and "Ecopreneurship"; they address the question which variables promote or inhibit the growth of young green firms. Students conduct independent research projects on green ventures.</p> <p>(cf. http://www.entrepreneurship.uni-</p> | <p>Research focus of the Assistant Professorship in Entrepreneurship on "Sustainable Entrepreneurship" and "Social Entrepreneurship</p> | <p>Centre for Entrepreneurship: consultation of green ventures as part of services provided</p> <p>(cf. http://www.zfe.uni-</p> | <p>The Campus Business Box 's opencampus initiative organizes projects between students and industry or charities</p> <p>(cf. http://www.campusbusinessbo</p> |

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| | <p>neurship.uni-kiel.de/de/lehre/master/ – in German only)</p> <p>The Centre for Entrepreneurship integrates efforts in the area of social entrepreneurship and provides support for green ventures amongst other academic founders (cf. http://www.zfe.uni-kiel.de/de – in German only).</p> <p>Kiel School of Sustainability: “Our aim is to enable students to analyse issues of sustainable development under a multidisciplinary perspective and empower them to take action in order to create sustainable solutions.” (cf. http://www.sustainability.uni-kiel.de/de/lehre/master/ – in German only)</p> | <p>kiel.de/de/lehre/master/ – in German only)</p> <p>Kiel School of Sustainability: For postgraduate students the Kiel School of Sustainability offers Master’s programmes focusing on different aspects of sustainable development:</p> <p>M.Sc. in “Sustainability, Society and the Environment (SSE)” and M.Sc. in “Environmental Management (EM)” (cf. http://www.sustainability.uni-kiel.de/en/taught-masters)</p> <p>For both undergraduate and postgraduate students the Kiel School of Sustainability offers the Changemaker Curriculum for Sustainable Development and Social Entrepreneurship. The curriculum teaches students of all Bachelor, Master and PhD programmes how to create own projects for sustainable development. (cf. http://www.sustainability.uni-kiel.de/en?set_language=en)</p> <p>Changemaker MOOC “Social Entrepreneurship” (cf. https://iversity.org/en/courses/changemaker-mooc-social-entrepreneurship)</p> <p>The Changemaker MOOC courses teaches how to plan socially or environmentally sustainable projects. Participants learn how to solve societal problems entrepreneurially.</p> | <p>Education” (cf. http://www.entrepreneurship.uni-kiel.de/de/forschung-g-2/aktuelle-forschungsprojekte/)</p> <p>Research focus of the Kiel School of Sustainability on “Social Entrepreneurship Education”, “Problem solving-based Learning”, “Action Learning” and “Teaching for Empowerment”</p> | <p>kiel.de/de – in German only)</p> <p>Campus Business Box: support of student projects (cf. http://www.campusbusiness-box.de/organisation – in German only)</p> <p>Ideas Competition yooweedoo: yooweedoo enables students to learn how to change the world with their own ideas. Change projects developed in the learning programme can be submitted for start-up funding in the yooweedoo Ideas Competition. Successful proposals will be implemented as six months pilot projects. There is a special section on energy and climate protection projects (“yooweedoo climate</p> | <p>x.de/organisation)</p> |

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| | kiel.de/en?set_language=en) | | | challenge"). (cf. http://www.yooweedoo.org/das-projekt - in German only) | |
| University of Oldenburg http://www.uni-oldenburg.de/en/ | <p>The University of Oldenburg has been honoured by the German Federal Ministry of Economics and Energy (BMWi) as one of the best entrepreneurial universities in Germany (cf. http://www.uni-oldenburg.de/en/entrepreneurs/)</p> <p>"Sustainable Entrepreneurship" is a core topic of the entrepreneurial university.</p> <p>Sustainability-relevant topics like energy, environmental science and biodiversity are key</p> | <p>Master cluster with 9 master programmes in sustainability, energy and environmental sciences (http://www.coast.uni-oldenburg.de/download/Coast_MasterCluster-Flyer-2010.pdf)</p> <p>Master's programme "Sustainability Economics and Management (SEM)" (http://sem.uni-oldenburg.de)</p> <p>The "Eco-Entrepreneurship" major study course is part of the Master's programme SEM (see above). It includes the "Innovation Management" and "Entrepreneurship" modules as well as the "Eco-Venturing" project course, a winner of the Hans Sauer Prize for the promotion of environmental innovation.</p> <p>The "Eco-Venturing" module is part of the University of Oldenburg's SEM Master's course. The main focus of the Eco-Venturing module is the development of new or established business start-up concepts. Under the guidance of their lecturer, participants work together with select regional business partners who are both economically successful and contribute to environmental and climate protection to promote such start-up concepts. The concepts all address the issue of sustainability (cf. http://www.uni-oldenburg.de/en/innovation/; http://www.uni-oldenburg.de/en/wire/innovation/teaching-winter-semester-</p> | <p>The Oldenburg Centre for Sustainability Economics and Management (CENTOS) comprises more than 50 researchers from economics, management science, computer science and law. CENTOS combines scientific competence and activities in the areas of environmental economics and sustainability management which have been developed over the course of the past two decades (cf. http://www.uni-oldenburg.de/en/centos/).</p> | <p>"Sustainable Entrepreneurship" is a core topic of the university. The university offers a broad range of generic entrepreneurship support (cf. http://www.uni-oldenburg.de/en/entrepreneurs/) as well as sustainability-specific coaching and mentoring services, e.g. in regards to start-up ideas in the fields of cleantech, energy or sustainable lifestyles.</p> <p>Ideas Competition for start-ups and SMEs in the fields of climate protection and adaptation (cf. http://www.n-i-</p> | <p>The module "Eco-Venturing" allows for collaboration with local enterprises, especially in the area of sustainable entrepreneurship.</p> <p>Regional SME network initiative for climate protection and adaptation: http://www.n-i-k.net/</p> <p>The University of Oldenburg is a leading partner in StartUp4Climate, the first national initiative for a Green Economy worldwide (cf. http://www.startup4climate.de).</p> <p>The Professorship in "Innovation Management and Sustainability" has developed the "Sustainable Business Canvas", a specific tool for the development of sustainability-</p> |

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| | <p>research foci of the university (cf. http://www.uni-oldenburg.de/en/main-areas-of-research/).</p> <p>The Oldenburg Centre for Sustainability Economics and Management (CENTOS) comprises more than 50 researchers from economics, management science, computer science and law. CENTOS combines scientific competence and activities in the areas of environmental economics and sustainability management which have been developed over the course of the past two decades (cf. http://www.uni-oldenburg.de/en/centos/).</p> <p>Adjunct Professorship in</p> | 20142015/all-courses/eco-venturing-module/). | <p>Adjunct Professorship of Innovation Management and Sustainability</p> <p>(cf. http://www.uni-oldenburg.de/en/innovation/)</p> <p>The Adjunct Professorship of Innovation Management and Sustainability focuses on research in areas such as innovation management, the generation of sustainability innovations, the creation of 'green' future markets, and eco-entrepreneurship.</p> | k.net/wettbewerb/). | orientated business models. This tool is being applied in co-operation with the Berlin Brandenburg Business Plan Competition , the oldest and largest business plan competition in Germany. |

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| | <p>"Innovation Management & Sustainability"</p> <p>(cf. http://www.uni-oldenburg.de/en/innovation/)</p> <p>The role holder of the Adjunct Professorship for Innovation Management & Sustainability is responsible primarily for the Eco-Entrepreneurship specialization course and the extra-occupational master's programme in Innovation Management which is carried out at the Centre for Lifelong Learning (C3L).</p> | | | | |
| <p>University of Stuttgart</p> <p>http://www.uni-stuttgart.de/home/index.en.html</p> | <p>Offers different B.Sc and M.Sc.level engineering courses in Clean Technology:</p> <ul style="list-style-type: none"> • Renewable Energy Engineering B.Sc. <p>(cf. http://www.uni-stuttgart.de/studieren/angebot/studiengang/Renewable_Energy_Engineering_B.Sc./?__locale=en)</p> | <p>Research in areas such as innovation management, efficient energy consumption, new transport technologies (cf. http://www.uni-stuttgart.de/forschung/projekte/bund/)</p> | <p>Technology Transfer Initiative (TTI)</p> <p>(cf. https://www.tti-stuttgart.de)</p> <p>TTI provides general entrepreneurship support. Its</p> | <p>Affiliate partner of the German KIC-InnoEnergy Network. The University's Technology Transfer Initiative (TTI) is a collaborator.</p> <p>(cf. https://www.tti-stuttgart.de/informationen/; http://www.gradus.uni-stuttgart.de/programme/index.)</p> | |

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| | | <ul style="list-style-type: none"> Sustainable Electrical Power Supply M.Sc. (cf. http://www.uni-stuttgart.de/studieren/angebot/studiengang/Sustainable_Electrical_Power_Supply_M.Sc./?__locale=en) Innovation Management course offers for the MINT-study courses: (cf. http://www.bwi.uni-stuttgart.de/index.php?id=4140) | <p>bmub.html; http://www.uni-stuttgart.de/forschung/orp)</p> | <p>collaboration with the KIC-InnoEnergy Network (see "external co-operation") allows a focus on innovative energy technologies.</p> | <p>en.html; http://www.kic-innoenergy.com/education/phd-school/)</p> <p>In the context of its collaboration with KIC-InnoEnergy, the University of Stuttgart collaborates with the KIC InnoEnergy PhD School.</p> <p>Moreover, the University of Stuttgart, through its Technology Transfer Initiative (TTI), contributes to InnoEnergy by means "identifying and monitoring start-up projects in the area of Energy Management at the University of Stuttgart and higher education and research institutions in the Stuttgart Region."</p> <p>In the context of its collaboration with KIC-InnoEnergy, the University of Stuttgart collaborates also with the KIC InnoEnergy Master School.</p> <p>KIC InnoEnergy Master School</p> |

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| | | | | | <p>is a consortium of eleven top universities and two business Schools</p> <p>(cf. http://www.kic-innoenergy.com/education/master-school/)</p> <p>KIC InnoEnergy Master School offers seven Master programmes in sustainable energy (rare combination of engineering and entrepreneurship).</p> <p>(cf. http://www.uni-stuttgart.de/home/news/news_0737.html?__locale=de)</p> |

4.2 Sweden

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| <p>Blekinge Institute of Technology, Karlskrona</p> <p>http://www.bth.se/eng</p> | <p>The institution's strategic focus is on "Applied IT and Innovation for Sustainable Growth": According to the Board of Directors' strategy document "The strategy is to expand within our profile Applied IT and Innovation for Sustainable Growth. To stimulate and reward research projects that can lead to innovative IT-solutions and promote sustainability. To educate students in a creativity and sustainability approach, in scientific thinking and in management/entrepreneurship."</p> <p>(cf. http://www.bth.se/eng/about-bth.nsf/pages/about-</p> | <p>Master's in "Strategic Leadership towards Sustainability" (MSLS)</p> <p>(cf. http://www.bth.se/ste/tmslm.nsf/pages/msls_home)</p> <p>The MSLS programme revolves around two integrated themes: strategic sustainable development – a science-based, strategic approach in planning towards sustainability, and organizational learning and leadership –practicing leadership to effectively create change towards sustainability.</p> <p>Master's in "Sustainable Product-Service System Innovation" (MSPI)</p> <p>(cf. http://www.bth.se/tek/mspi.nsf/pages/program-design)</p> <p>The design of the MSPI programme is in response to the industrial demand for graduates who can combine engineering competence with sustainability knowledge to help deliver new product/service systems. The programme is in close collaboration with industry.</p> <p>M.Sc. in Mechanical Engineering</p> <p>(cf. http://edu.bth.se/utbildning/utb_program.asp?lang=en&PtKod=MTAC111h)</p> | <p>The Center for Sustainable Product-Service System Innovation (SPIRIT) focuses on relevant research areas such as Strategic Sustainable Development (SSD) (cf. http://www.bth.se/ing/spirit.nsf/pages/research-areas). Projects include "Modelling Social Sustainability for Sustainable Product Innovation (SDI)", "Sustainability Criteria in Concept Evaluation Methodology (SDI)" and "Green Charge Sydost" (cf. http://www.bth.se/ing/spirit.nsf/pages/projects; http://greencharge.se)</p> | <p>Blekinge Business Incubator (generic offering)</p> <p>(cf. http://www.b-b-i.se – in <i>Swedish only</i>)</p> <p>Blekinge Business Incubator provides general incubation services; a specific focus on climate change or sustainable development-related start-up initiatives is not apparent.</p> | <p>Most of the research and education, especially in the fields of sustainability and innovation, take place in collaboration with external partners (cf. independent external review of all of BTH's 14 research groups (autumn 2013) which emphasized its national and international academic network and cooperation and networks in industry and society).</p> <p>A Master's thesis at the university looked at "Introducing Strategic Sustainable Development in a business incubator" (2007) at Inova Business Incubator in Karlstad, Sweden: http://www.bth.se/fou/cuppsats.nsf/0/7c0ff5d36e396299c12572ef0033ea8c?OpenDocument. Although sustainability-focused companies are part of Inova (http://inova.nu/en/) an explicit integration of sustainable development principles is not apparent.</p> |

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| | <p>bth)</p> <p>The policy statement in BTH's sustainability plan puts a strong emphasis on the integration of sustainability in research, teaching and collaboration with industry and society as well as administrative and management activities (cf. http://sustainability.u-csc.edu/governance/files/campus-sust-plan-1-5-full-ver.pdf)</p> <p>Center for Sustainable Product-Service System Innovation (SPIRIT)</p> <p>(cf. http://www.bth.se/spirit)</p> <p>Vision of SPIRIT is to be an internationally leading research, education and co-</p> | <p>The M.Sc. programme offers a specialization in "Innovative and Sustainable Product Development".</p> <p>The above three programmes do not have an explicit focus on entrepreneurship; however, they convey a range of skills relevant for entrepreneurially minded students.</p> | <p>Research group "SDI - Sustainability-Driven Innovation", Department of Strategic Sustainable Development, School of Engineering (cf. http://www.bth.se/web/research2014.nsf/sidor/strategic-sustainable-development).</p> <p>The research group within PDRL - Product Development Research Lab (in Mechanical Engineering) is using a strategy of creative problem solving at an early stage and computer simulations to generate ideas, create, appreciate, model and drive the development of product-service innovations in an industrial context.</p> | | |

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| | <p>production environment, and the natural first-hand choice for partners who want to be leading edge examples of transformation into a new breed of businesses that create and deliver sustainable and competitive product-service systems, and hence lead the way to a sustainable society.</p> <p>Department of Strategic Sustainable Development</p> <p>(cf. http://www.bth.se/web/research2014.nsf/sidor/strategic-sustainable-development)</p> | | <p>The research helps companies meet the complex challenges when moving towards a situation where they need to develop greener products and services to be sustainable (cf. http://www.bth.se/web/research2014.nsf/sidor/mechanical-engineering).</p> | | |
| <p>Chalmers University of Technology, Gothenburg</p> <p>http://www.chalmers.se</p> | <p>University vision "Chalmers for a sustainable future": permeates all activities, from undergraduate education and doctoral</p> | <p>At Chalmers, all students take 7.5 credit hours' worth of classes in environment and sustainable development (cf. http://www.chalmers.se/en/about-chalmers/Chalmers-for-a-sustainable-future/Pages/Education-for-a-sustainable-future.aspx).</p> <p>M.Sc. in "Design for Sustainable Development"</p> | <p>Research is linked to the newly (2015) started Chalmers Initiative for Innovation and Sustainability Transitions (CIIST). Website is under</p> | <p>Chalmers Innovation offers money and experience to inventors and start-ups. There are seven experienced business coaches, all with focus on fast growing</p> | <p>Chalmers University of Technology is Climate-KIC's first network partner in Sweden.</p> <p>(cf. http://www.chalmers.se/en/areas-of-</p> |

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| | <p>programmes, research, innovation and collaboration, to campus development and internal environment. For almost thirty years, all students have taken a class in environment and sustainable development and had the opportunity to complete their studies with a sustainability profile (cf. http://www.chalmers.se/en/about-chalmers/Chalmers-for-a-sustainable-future/Pages/default.aspx).</p> <p>Chalmers Challenge Lab (cf. http://www.challengelab.org; http://www.challengelab.org/#!the-course/c1y99)</p> <p>The Chalmers</p> | <p>(cf. http://www.chalmers.se/en/education/programmes/masters-info/Pages/Design-for-Sustainable-Development.aspx)</p> <p>The course is comprehensive in nature and has a strong sustainability in design emphasis with a practice focus; entrepreneurship content is not explicitly being taught.</p> <p>M.Sc. in “Sustainable Energy Systems” (cf. http://www.chalmers.se/en/education/programmes/masters-info/Pages/Sustainable-Energy-Systems.aspx)</p> <p>The course is comprehensive in nature and has a strong sustainability and renewable energy emphasis with a practice focus; entrepreneurship content is not explicitly being taught.</p> <p>M.Sc. in “Innovative and Sustainable Energy Engineering” (cf. http://www.chalmers.se/en/education/programmes/nordic-five-tech/Pages/Innovative-Sustainable-Energy-Engineering.aspx)</p> <p>Chalmers is part of Nordic Five Tech (N5T) and as such partners on the M.Sc. programme “Innovative and Sustainable Energy Engineering” (see description under KTH Royal Institute of Technology).</p> | <p>construction.</p> | <p>technology based start-up companies. (cf. http://www.chalmersinnovation.com)</p> <p>Incubator (generic offering) works in collaboration with the Chalmers School of Entrepreneurship (http://www.chalmers.se) to support the development of ideas (cf. http://www.incubator.com/contact/education-incubation-encubation/). “Incubation” combines “Education” and “Incubation”. The Incubation model is part of the 2-year action-based master’s education. During the second year of the education students are prepared to take on a real innovation project as business developers. The aim is to develop a</p> | <p>advance/builtenvironment/news/Pages/Smart-Sustainable-Districts.aspx)</p> <p>It is a core partner on Climate-KIC’s master programme. (cf. http://www.climate-kic.org/national-centres/nordic/partners/)</p> <p>One of the new Climate-KIC programmes that Chalmers participates in is the Building Technologies Accelerator, of which a new ‘living lab’ at the Chalmers Johanneberg campus is an important part. The multimillion euro programme brings together multidisciplinary living lab teams across Europe to address the climate impact of new building technologies and accelerate the potential of low carbon products and services in the built environment (cf. http://www.chalmers.se/en/areas-of-advance/builtenvironment/news/Documents/Johanneberg%20District%20Factor%2010%20booklet%20for%20edition%20140526.docx.pdf).</p> |

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| | <p>Challenge Lab is an initiative where Master's students take on big societal challenges with industry clusters, government and academia. The aim of the Challenge Lab, a 7.5 credit Master's-level course, is to provide students with perspectives, methods and tools that are useful in taking on and leading on challenge-driven sustainability transitions. The course is also a preparatory course for a Challenge Lab Master's Thesis. Currently, the focus is on sustainable transport solutions. Goal of the Challenge Lab is also to attract public financiers and connect them with master's level students and their activities.</p> | <p>The Chalmers Challenge Lab includes Master's theses from the above M.Sc. programmes.</p> <p>M.Sc. in "Entrepreneurship and Business Design" (cf. http://www.chalmers.se/en/education/programmes/masters-info/Pages/Entrepreneurship-and-Business-Design.aspx)</p> <p>The course is comprehensive in nature and has a strong entrepreneurship emphasis. Sustainability content is not explicitly being taught but a focus on sustainability is being encouraged by the school's general emphasis.</p> <p>At Chalmers University of Technology there is an increasing connection between sustainable development and entrepreneurship & innovation in courses.</p> | | <p>business idea into a start-up venture.</p> <p>Ventures started from the Chalmers School of Entrepreneurship often have a clean technology focus. For instance <i>Wavetube</i> became number one in the Climate-KIC competition in Valencia in 2014. Other sustainability-focused projects include, e.g., <i>Algot</i>, <i>Aquarobur</i> and <i>WaterWeave</i></p> <p>(cf. http://www.encubator.com/ventures2/venture-lab/).</p> | <p>Living labs are buildings to test technology prototypes in real-life environments, the people living or working in a living lab are part of the prototype testing. By conducting tests with actual building users and in real climate conditions, researchers can evaluate the performance of new products in a more realistic way.</p> <p>Chalmers is also a core partner in new Climate-KIC programmes on CO2 re-utilisation and sustainable cities.</p> <p>Chalmers is part of Nordic Five Tech (NST) and as such partners on the M.Sc. programme "Innovative and Sustainable Energy Engineering" (see description under KTH Royal Institute of Technology).</p> |
| KTH Royal | | M.Sc. in "Innovative and Sustainable Energy Engineering" | | | |

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| Institute of Technology, Stockholm https://www.kth.se/en | | <p>(cf. http://www.kth.se/en/studies/master/joint/innovative-sustainable-energy-engineering/description-1.26611)</p> <p>The M.Sc. programme in "Innovative and Sustainable Energy Engineering" focuses on the fields of conventional and renewable energy sources like conventional and new power generation, solar energy, biomass energy, wind power, geothermal power and energy utilization in the built environment by means of economically and environmentally sustainable systems and technologies.</p> <p>The programme stresses the innovative and entrepreneurial aspects of the energy society, especially related to how existing and new efficiency improvement innovations can be brought to the market in different countries.</p> <p>The programme is part of Nordic Five Tech (NST) (http://www.nordicfivetech.org), a strategic alliance of five leading technical universities in Denmark, Finland, Norway and Sweden:</p> <ul style="list-style-type: none"> • Aalto University, Helsinki, Finland • Chalmers University of Technology, Gothenburg, Sweden • Technical University of Denmark, Lyngby, Denmark • KTH Royal Institute of Technology, Stockholm, Sweden • Norwegian University of Science and Technology, Trondheim, Norway <p>Module in "Innovations for Sustainable Development on a Local or Global Level"</p> <p>(cf. http://www.kth.se/student/kurser/kurs/AE1707?l=en)</p> | | | |

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| | | <p>The module "Innovations for Sustainable Development on a Local or Global Level" focuses on sustainable development, entrepreneurship and innovation at both local and global levels. The aim is for students to develop a concrete proposal (idea/innovation) that promote sustainable development. This can be a technical application, a method/model, a mobile application or the like.</p> | | | |
| <p>Linköping University (LiU), Linköping http://www.liu.se/?l=en</p> | <p>Division of Energy Systems, Department of Management and Engineering (cf. https://www.iei.liu.se/envtech?l=en)</p> <p>Research and education from the Division for Environmental Technology and Management has a strong impact and innovation focus striving to turn "environmental problems into opportunities".</p> | <p>M.Sc. in "Sustainability Engineering and Management" (cf. https://www.liu.se/utbildning/pabyggnad/6MSUS/energy-and-environmental-engineering-120-credits?l=en)</p> <p>The Sustainability Engineering and Management master's programme deals with the multifaceted challenge of developing products, services and technical systems that contribute to increased resource effectiveness and sustainability.</p> <p>The programme also includes courses on the development and implementation of sustainability concepts and strategies such as Innovative Entrepreneurship and Innovation Management.</p> <p>M.Sc. in "Industrial Engineering and Management" with a specialization in "Environmental Innovation Management" (cf. http://www.liu.se/utbildning/pabyggnad/6MIND?l=en)</p> <p>The programme deals with complex interdisciplinary issues in industry and focuses on the integration of engineering and management knowledge and skills. The specialization in</p> | <p>Division for Environmental Technology and Management, Department of Management and Engineering (cf. https://www.iei.liu.se/envtech/forskning?l=en)</p> <p>Main focus of the multidisciplinary research group is the transformation of organizations, technical systems and products and services towards a resource efficient society. Research areas include:</p> | <p>LiU founded and co-owned Cleantech Östergötland (cf. http://www.cleantechostergotland.se/index.php?page_show=4)</p> <p>Cleantech Östergötland is a business-orientated collaborative arena for Östergötland's environmental technology companies. Cleantech Östergötland brings together and promotes the region's business and development opportunities.</p> <p>The LiU Innovations Office (<i>generic focus</i>)</p> | <p>MDPU – Environmental Driven Product Development: The project (2008-2010) was funded by the EU and the aim was to support 25 small companies in environmentally driven product development. The outcome was more than 20 new products or concepts and more than 25 jobs created. Other partners included Almi Företagspartner AB, The County Administrative Board and Cleantech Östergötland.</p> <p>SIMPLE: Successful implementation of eco-design in SMEs (2006-2007). The County Administrative Board was project owner and the project was funded by EU Interregio. The project involved three European regions and supported small companies in eco-design activities. In Sweden</p> |

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| | | <p>"Environmental Innovation Management" focuses on the development and commercialization of resource efficient products and sustainable solutions. It deals with innovation within large established firms as well as smaller entrepreneurial start-up firms. Subjects include management systems sustainability, innovation management, resource efficient products, industrial ecology, leadership and organization, and business planning and entrepreneurship.</p> <p>Other courses with sustainable innovation/ entrepreneurship focus offered at engineering programmes:</p> <ul style="list-style-type: none"> • Advanced Ecodesign (cf. http://kdb-5.liu.se/liu/lith/studiehandboken/enkursplan.lasso?&k_kurskod=TKMJ46&k_budget_year=2015) • Resource Efficient Products (cf. http://kdb-5.liu.se/liu/lith/studiehandboken/enkursplan.lasso?&k_kurskod=TKMJ29&k_budget_year=2015) • Environmentally Driven Business Development | <ul style="list-style-type: none"> • Product, Service, Innovation • Environmental Transitions and Management • Industrial Symbiosis • Resources 2.0 <p>Division of Energy Systems, Department of Management and Engineering</p> <p>(cf. https://www.iei.liu.se/energi/forskning?l=en)</p> <p>Research projects analyzes the energy system with the aim of developing sustainable energy systems. There is no explicit focus on entrepreneurship.</p> <p>Research projects involving sustainable SMEs (cf.</p> | <p>has arranged "society quests" etc. aiming at cleantech companies. The Innovation Office promotes the commercialization of research results and fosters innovations.</p> <p>(cf. http://www.liu.se/samverkan?l=en)</p> | <p>11 companies participated. Other partners were Almi Företagspartner AB and different consultancy firms.</p> <p>Fördel MPU: The project (2002-2004) was funded by the Swedish Development Agency and was owned by the County Administrative Board. In this project 9 companies worked with eco-design.</p> <p>(cf. http://www.iei.liu.se/envtech/samverkan/miljodrivn-produktutveckling?l=sv-in-Swedish only)</p> |

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| | | | <p>http://www.iei.liu.se/envtech/forskning/avslutade_forskning_sprojekt?l=en):</p> <ul style="list-style-type: none"> • IQ – Intelligent Cleaning • Solvent free cleaning • Asia Eco-Design Electronics (AEDE) project <p>Other relevant research includes “Megatech: Sustainable Business and Clean Technology Markets in Megacities”</p> | | |
| <p>Luleå University of Technology (LTU), Luleå http://www.ltu.se/?l=en</p> | | <p>M.Sc. in “Pervasive Computing and Communications for Sustainable Development” (cf. http://www.ltu.se/edu/program/TMDHA/TMDHA-Distribuerade-datorsystem-for-hallbar-utveckling-master-1.94732?l=en)</p> <p>The programme is based on the EU’s Erasmus Mundus cooperation between four universities and combines courses in Information and Communication Technology (ICT) addressing sustainable development considering both ICT and how ICT can be used for applications and services for</p> | <p>Research in “Green Technology” (cf. http://www.ltu.se/research/l-fokus-just-nu/green-technology/research?l=en)</p> <p>LTU has a dedicated research focus on</p> | | <p>Arctic Business Incubator (ABI) at Luleå Science Park (<i>generic offering</i>) (cf. http://www.luleasciencepark.se/about-us/vi-erbjuder/?lang=en)</p> <p>The Arctic Business Incubator collaborates with LTU and provides incubation services. A</p> |

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| | | <p>sustainable development. The course is interdisciplinary in nature but there is no specific course content (e.g. module) focusing on entrepreneurship.</p> <p>Master's Programme in "Sustainable IT Systems" (cf. http://www.ltu.se/edu/program/TMDSA/TMDSA-Sustainable-IT-Systems-master-1.76936?l=en)</p> <p>The programme focuses on the use of IT to obtain sustainable, energy efficient systems, e.g. in the areas of automatic control and mechatronics. The course is interdisciplinary in nature but there is no specific course content (e.g. module) focusing on entrepreneurship.</p> <p>Course in "Sustainable Energy Systems" (cf. http://www.ltu.se/edu/course/F00/F0040T/F0040T-Hallbara-energisystem-1.68059?kursView=kursplan&ugglanCat=student&l=en)</p> <p>The bachelor's level course describes the role of energy supply in a sustainable society. The global energy situation and the resource and environmental problems it causes are presented and discussed. State-of-the-art technology for renewable energy conversion is brought up. The course is interdisciplinary in nature but there is no specific course content (e.g. module) focusing on entrepreneurship.</p> | <p>Green Technology, especially bio fuels, bio composites and energy effectiveness solutions.</p> <p>A direct link to LTU's entrepreneurship efforts is not evident but a focus on green technologies can form the basis for extensive entrepreneurial activities in this area.</p> <p>Areas of excellence in research and innovation (cf. http://www.ltu.se/org/tvm/Verksamhet/Styrke-och-innovationsomraden?l=en)</p> <p>To build the research and</p> | | <p>specific focus on sustainable entrepreneurship, however, is not apparent.</p> |

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| | | | <p>education profile of LTU in the future, the university has launched several priority areas for innovation and research. Some of these areas involve issues that can form a basis for sustainable entrepreneurship (incl. "Attractive Built Environment", "Renewable Energy", "Sustainable Transportation") but the research does not explicitly link sustainability and entrepreneurship.</p> <p>(cf. http://www.ltu.se/org/tvm/Verksamhet/Styrke-och-innovationsomraden?l=en)</p> | | |
| Swedish University of Agricultural Sciences (SLU), | According to its own description, SLU "is a university with a clearly defined role in | Module in "Environmental Economics and Management" (cf. http://www.slu.se/sv/institutioner/ekonomi/utbildning/progr | | | |

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| Uppsala http://www.slu.se/en/ | society: to take responsibility for the development of learning and expertise in areas concerning biological resources and biological production. This responsibility stretches over the wide-ranging fields of agriculture, forestry and food industry to environmental questions, veterinary medicine and biotechnology. A comprehensive viewpoint, interdisciplinary approach and applicability are keywords in SLU's research and teaching and in the contacts with industry and society." (cf. http://www.distancelearningportal.com/universities/172/swedish-university-of-agricultural-sciences.html) | ams/environmental-economics-and-management/ The module in "Environmental Economics and Management" combines knowledge in economics and business administration with areas of application in the environmental field. SLU uses its links with resource-based industries to bring environmental issues alive and to address current challenges. | | | |
| Umeå School of Business and Economics, | USBE is in a process of integrating Sustainability standards and Responsible | Graduate and undergraduate level courses integrate sustainability content, including elective modules (cf. http://www.umu.se/english/education/courses-and-programmes) | RiseB – Research Institute for Sustainability and Ethics in Business | Students work with real life cases with sustainability focus – transfer of | USBE appoints innovation ambassador for external co-operation |

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| Umeå (USBÉ) http://www.usbe.umu.se/english/ | <p>Management principles into the degree programmes. (cf. http://www.usbe.umu.se/english/about/srm/)</p> <p>This includes the following measures:</p> <ul style="list-style-type: none"> • Certified ISO 14001 based environmental management system (EMS) • PRME (Principles for Responsible Management Education) signatory • Mission is to create knowledge in interaction with stakeholders to develop responsible leaders with a sustainability orientation • USBÉ has appointed a Council for Sustainable Development <p>Detailed goals include:</p> <ul style="list-style-type: none"> • USBÉ shall broaden the scope and clar- | | <p>(cf. http://www.org.umu.se/riseb/english/?languageId=1)</p> <p>The purpose of the institute is to conduct and publish research in the area of sustainability and ethics in business. This includes seminars, workshops, guest researchers and strategic collaborations. An integration with entrepreneurship, however, is not a dedicated goal.</p> <p>Research in Entrepreneurship with inputs on Sustainability</p> <p>(cf. http://www.usbe.umu.se/english/dept/fek/research/entrepreneurship/)</p> <p>Research in the field of entrepreneurship</p> | <p>knowledge to companies</p> | |

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| | <p>ify the progression of sustainable development in education.</p> <ul style="list-style-type: none"> • USBE shall strengthen and clarify research and doctoral education on sustainable development. • USBE shall strengthen cooperation with stakeholders by increasing the number of collaborative activities on sustainable development. • USBE's environmental impact from support operations will be on a sustainable level. | | <p>and small business development is one of the oldest at the school. Swedish research on entrepreneurship and SMEs originated in Umeå. Research on sustainability as part of the field of entrepreneurship concerns the role of values, perceptions and assumptions for economic activity and entrepreneurship. Studies concern changes in industrial practices towards environmental sustainability in different sectors and regions, for example highlighting the role of climate labelling and climate counselling.</p> | | |
| <p>University of Gothenburg http://www.gu.se/english</p> | <p>The Global Innovation Challenges Program, Institute for Innovation and Social</p> | <p>Module in "Social Innovation and Entrepreneurship" (cf. http://www.utbildning.gu.se/education/courses-and-programmes/course_detail/?courseId=GM1305)</p> | <p>In their Ph.D. thesis students at the Medical Faculty focus on how entrepreneurial</p> | <p>GU Holding AB, the University's holding and portfolio company, focuses on developing start-ups</p> | <p>The Institute for Innovation and Social Change collaborates with local, national and international actors.</p> |

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| | <p>Change</p> <p>(cf. http://iis.gu.se/english/programs-and-projects/global-innovation-challenges-program-)</p> <p>The programme supports the GU in its efforts to implement a strategy addressing major societal challenges through innovation. It is in accordance with the University's intention to take responsibility for the utilization of research and education and its ambition to create social value. Sustainability (Energy, Environment and Climate Change), Social Justice (Dignity and Welfare Development) and Basic Needs (Healthcare, Food and Nutrition, Water - linked to Millennium Development Goals) are three of the five</p> | <p>The aim of the module "Social Innovation and Entrepreneurship" is to provide students with a new orientation and way of thinking to organize and lead sustainable development, namely through social innovation and entrepreneurship. The course focuses on ways in which social innovation and entrepreneurship are driving the delivery of social (including environmental) value in communities, and the way in which this (accelerating economic) relationship drives social changes, both globally and locally.</p> <p>The course in "Entrepreneurship in Life Science" is part of the Master's Programme "Applied Business Creation and Entrepreneurship in Biomedicine" with a strong focus on project work in academia, SMEs as well as within the hospital through "Health Care Inc.", an initiative of the Sahlgrenska School of Innovation and Entrepreneurship (cf. http://utbildning.gu.se/education/courses-and-programmes/program_detail/?programid=M2BCE).</p> | <p>support platforms can effect sustainable entrepreneurial learning and institutionalization in academia.</p> | <p>spun off from the University of Gothenburg (<i>generic offering without specific focus on sustainable entrepreneurship</i>).</p> <p>"Difference Inc.", an initiative of the Sahlgrenska School of Innovation and Entrepreneurship (cf. http://medicine.gu.se/english/Innovation+and+entrepreneurship), manages projects based on social needs. "Difference Inc." has conducted both international projects for the World Intellectual Property Organization (WIPO) and local projects in the suburbs of Gothenburg.</p> | |

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| | <p>key areas.</p> <p>The University of Gothenburg offers different courses and programmes that include elements of sustainable development to varying degrees. Here, the course or programme's learning outcomes need to meet sustainability criteria</p> <p>(cf. http://utbildning.gu.se/education/courses-and-programmes/programmes_in_english).</p> | | | | |
| <p>Uppsala University, Uppsala</p> <p>http://www.uu.se/en</p> | | <p>Module in "Sustainable Entrepreneurship - Tools for Innovation, Collaboration and Change"</p> <p>(cf. http://www.uu.se/en/admissions/master/selma/kurser/?kKod=19601&lasar=13%2F14&typ=2)</p> <p>In "Sustainable Entrepreneurship - Tools for Innovation, Collaboration and Change" students start by working with defining and developing innovative ideas that bring together their engagements in sustainability, passions in life and academic backgrounds. Different tools and methods for</p> | | <p>The School of Entrepreneurship (generic offering)</p> <p>(cf. http://www.indtek.teknik.uu.se/utbildning-vid-avdelningen-industriell-ekonomisk-och-entreprenorsk-olan/)</p> | <p>Entrepreneurship Lab (generic offering)</p> <p>(cf. http://www.entrepreneurship-lab.se)</p> <p>The Entrepreneurship Lab collaborates with Master's students and the Master's in Entrepreneurship at Uppsala University. The Lab connects</p> |

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| | | innovation, collaboration, planning, change processes are presented in lectures and literature, and then worked with in interactive workshops. The course offers students the opportunity to try out concepts and ideas that hopefully will create sustainable and long lasting change in society and challenge greenwashing and unsustainable organizations. | | The School provides general entrepreneurship support, however does not focus explicitly on climate change or sustainable development-related start-up initiatives. | the innovation ecosystem locally in Uppsala with the university. |

4.3 Finland

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| Aalto University, Helsinki http://www.aalto.fi/en/ | <p>Aalto University's activities in sustainable development are rooted in a strong commitment to related goals as witnessed in its ISCN-GULF Sustainable Campus Charter Reports 2012 and 2013. It highlights the university's efforts to integrate sustainability in its research and teaching. Its intention is to integrate sustainability into all their teaching and research by 2015 and become Finland's leading sustainable university campus by 2020.</p> | <p>International Master's degree programme in "Creative Sustainability" (cf. http://acs.aalto.fi)</p> <p>Aalto University's international Master's Degree Programme in Creative Sustainability (CS) takes a multi-disciplinary approach and is offered jointly by the School of Arts, Design and Architecture, School of Business and School of Engineering. The CS programme touches upon the fields of architecture, business, design, landscape planning, real estate and urban planning. It is also offered as minor subject studies for all master level students of Aalto University. The practice-orientated programme encourages a holistic approach "to create new sustainable solutions for human, urban, industrial and business environments".</p> <p>M.Sc. programme in "Innovative and Sustainable Energy Engineering" (cf. http://www.aalto.fi/en/studies/education/programme/innovative_sustainable_energy_engineering_master/)</p> <p>Aalto University is also part of Nordic Five Tech (N5T) and as such partners on the M.Sc. programme "Innovative and Sustainable Energy Engineering" (see description under KTH Royal Institute of Technology above).</p> | <p>Corporate Environmental and Social Responsibility Research Group (CESR) at the Department of Management Studies (cf. https://wiki.aalto.fi/display/CESRR/About+CESR)</p> <p>The mission of the group's research is to produce knowledge about and solution proposals for business models and consumption practices that enhance sustainable development. The main research streams of the group are "Business innovations and</p> | <p>Aalto Start-Up Center (generic offering) (cf. http://www.start-upcenter.fi/en/)</p> <p>The Aalto Start-Up Center is a business accelerator operating from within Aalto University. It helps start-ups accelerate their growth with a combination of business, engineering and design know-how.</p> <p>A dedicated support of concrete start-up undertakings in the areas of climate change and sustainability, however, is not apparent.</p> <p>Aalto Center for Entrepreneurship</p> | <p>Impact Iglu (cf. http://www.impactiglu.org)</p> <p>Impact Iglu is a community for value-driven entrepreneurs. It allows people to collaborate, share knowledge, team-up and develop businesses. It connects entrepreneurs with opportunities in emerging markets. Community members encourage each other to create businesses with an impact through co-creation and mutual learning.</p> <p>Impact Iglu is a project of Aalto Global Impact, an organization supporting Aalto University's research and educational programmes for societal impact globally (cf. http://www.aaltoglobalimpact.org).</p> <p>Peloton, an initiative for a low-carbon economy (cf. http://peloton.me/peloton_en)</p> |

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| | | | consumption practices supporting sustainable development” and “Corporate sustainability”. | <p>(ACE) (generic offering) (cf. http://ace.aalto.fi)</p> <p>The aim of ACE is to commercialize research that originates from Aalto University. There does not seem to be a specific focus on the areas of climate change and sustainability. However, ACE acted as a partner to the project “Start-up and co-creation communities as ecosystems for eco-innovations (SCINNO)” (cf. http://www.syke.fi/en-US/Research_Development/Research_and_development_projects/Projects/Startup_and_cocreation_communities_as_ecosystems_for_ecoinnovations_SCINNO/Startup_and_cocreation_communities_as_ec(28045)).</p> | glish.html), has run projects together with Aalto University. Such collaborations between sustainably minded innovation initiatives and academic institutions lead to informal start-up support in the green economy. |

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| Lappeenranta University of Technology (LUT), Lappeenranta http://www.lut.fi/web/en | <p>Key Performance Indicators (KPIs), a scorecard or other guiding principles refer to sustainability or entrepreneurship:</p> <p>- Certified ISO 14001 based environmental management system (EMS); strategy 2020 is based on sustainability; entrepreneurship is strongly related:</p> <ul style="list-style-type: none"> • Part of strategy action plan: all students would gain entrepreneurship-like abilities during studies. • Part of EMS plans: Principles of sustainability will be part of the curriculum of 80% of graduating Master's students who have studied based on the 2016-2017 curriculum or later. | <p>M.Sc. in "Strategy, Innovation and Sustainability" (cf. http://www.lut.fi/web/en/admissions/masters-studies/msc-in-business-administration/strategy-innovation-and-sustainability-msis)</p> <p>LUT's Master's programme develops advanced competencies in the intersection of strategic management and innovation. The programme looks at sustainability issues both as challenges and an opportunities for value creation. The programme seeks to create an awareness for economic value creation to be in line with the creation of value to the entire society in a responsible manner.</p> <p>Doctoral Programme in "Environmental Technology" (cf. http://www.lut.fi/web/en/research/lut-graduate-school/doctoral-programmes/environmental-technology)</p> <p>Goal of the programme is to identify and develop environmentally friendly and cost-effective solutions that are sustainable from both the societal and individual perspective and that equally meet the needs of business, communities and society.</p> <p>Master's programme in "Energy Technology"</p> <p>The Master's programme in "Energy Technology" offers a concentration in "Sustainable Technology and Business". Students learn both technological solutions and business methods to put their own innovations into practice. The</p> | <p>Institute of Energy Technology ("LUT Energy") (cf. http://www.lut.fi/web/en/school-of-technology/lut-energy)</p> <p>The Institute of Energy Technology (LUT Energy, part of the School of Technology) is the largest energy research and education organization in Finland. It includes research on Energy Technology, Electrical Engineering and Environmental Technology.</p> <p>Environmental Technology research areas include (cf. http://www.lut.fi/web/en/school-of-energy-</p> | <p>Green Campus Innovations Ltd. (cf. http://greencampusinnovations.fi)</p> <p>The market-driven business model of Green Campus Innovations includes incubation, acceleration and seed investment activities and helps commercialize university research.</p> | <p>LUT is part of the International Sustainable Campus Network (ISCN) and won the Campus award in 2013 (cf. http://www.lut.fi/web/en/green-campus/measures/ISCN; http://www.international-sustainable-campus-network.org)</p> <p>LUT is part of the Nordic Sustainable Campus Network (NSCN) (cf. http://www.lut.fi/web/en/nscn 2014)</p> |

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| | <p>- LUT has WWF Green Office label since 2013 (cf. http://www.lut.fi/web/en/green-campus/current-issues)</p> <p>LUT School of Business and Management</p> <p>(cf. http://www.lut.fi/web/en/school-of-business-and-management)</p> <p>The School's focus is on sustainability (namely "sustainable competitiveness" and "green technology") in entrepreneurship-focused curriculum.</p> <p>LUT School of Energy Systems</p> <p>(cf. http://www.lut.fi/web/en/school-of-energy-systems)</p> | <p>studies consist of a group-orientated real-life project, incl. project planning, budgeting, communications and stakeholder management (cf. http://www.lut.fi/web/en/admissions/masters-studies/msc-in-technology/energy-technology; http://www.lut.fi/web/en/admissions/apply-to-lut/masters-studies/energy-technology/admissions-criteria-and-selection/sustainable-technology-and-business).</p> <p>Minors with a business and environment focus include the following courses (cf. https://noppa.lut.fi/noppa/opintojakso/cs10a0770/etusivu):</p> <ul style="list-style-type: none"> • Cleaner Technologies and Markets (LUT School of Business and Management) • Life-Cycle Costing of Investment Projects (LUT School of Business and Management) | <p>systems/research/environmental-technology):</p> <ul style="list-style-type: none"> • Lifecycle Modelling • Waste Management • Sustainable Community • Transition Management • Environment and Business | | |

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| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
| | <p>Focuses on entrepreneurship in sustainability-focused curriculum.</p> <p>The Professorship in “Environmental Economics and Management” and the Department of Environmental Technology (at the LUT School of Energy Systems) enable the integration of sustainability and entrepreneurship/ innovation in teaching and research (cf. http://www.lut.fi/web/en/cleantech-solutions/project-researchers; http://www.lut.fi/web/en/school-of-energy-systems/research/environmental-technology).</p> | | | | |
| Turku University of Applied | | New modules in “Corporate Social Responsibility” (from 2016), “Resource Efficiency” (from autumn 2015); “Smart | Research Group on “Resource-efficient | Start-up Journey (generic offering) | Member of the Consortium on Applied Research and Profes- |

| Higher Education Institution: | Programme or Activity (including Description/ Raison d'être): | | | | |
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| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
| Sciences, Turku http://www.tuas.fi/en/ | | Sustainable Cities" (from 2016) | Business" (cf. http://www.tuas.fi/en/research-and-development/research-groups/Resource_efficient_business/) The Resource-efficient Business Research Group is a regional development, training and research organization which includes industry professionals. The Group's primary objective is to promote resource efficiency and sustainable development in different sectors of the society. This concerns the circular economy including the reduction of waste, recycling and the decrease of environmental impacts. Among the | (cf. http://www.boostturku.com/startup-journey) The "Start-up Journey", a summer programme organized by a student-based entrepreneurship network at the Turku University of Applied Sciences, has proven to be an efficient self-organized programme to incorporate sustainability in their programme. Such student-led networks could also be initiated at other universities. | sional Education (CARPE) which highlights Entrepreneurship, Social Innovation and Sustainability (amongst others) as focus themes (cf. http://husite.nl/carpenetwork/carpe-themes/) |

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| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
| | | | <p>group's research interests are "environmental business and cleantech" and "generation of sustainable innovations".</p> <p>Research Group on "Responsibility, Enabling Regulation and Entrepreneurship"</p> <p>(cf. http://www.tuas.fi/en/research-and-development/research-groups/intangible-value-creation-and-global-regulations/)</p> <p>The Research Group focuses on researching and developing responsibility, global regulations in conjunction with entrepreneurship. The Group's cross-disciplinary</p> | | |

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| | | | research concentrates on how various regulatory means (private and public regulations, agreements, eco-labels) can be used to steer value chains towards responsible business. Its viewpoint is systemic innovation research. | | |
| University of Jyväskylä https://www.jyu.fi/en/ | University of Jyväskylä is a centre for family business and entrepreneurship research in Finland . There is also a strong environmental management focus at the university . As is the case with other universities, unfortunately, the two areas do not seem to cooperate much. For example, modules in the master's programme in "International Business and Entrepreneurship" | Master's in "Corporate Environmental Management" (cf. https://www.jyu.fi/en/studywithus/programmes/cem) The master's programme in "Corporate Environmental Management" represents a way forward with regards to the integration of sustainability content. Here, the School of Business and Economics provides an integrated and interdisciplinary approach to environmental issues and collaborates closely with the Department of Environmental Sciences. | Research group in "Corporate Environmental Management" (cf. https://www.jyu.fi/jsbe/en/cem/corporate-environmental-management) | "Yritystehdas" start-up centre (generic offering) (cf. https://www.jykes.fi/fi/yritystehdas - in Finnish only) University of Jyväskylä is one of the shareholders in "Yritystehdas", a local start-up centre. It has a generic focus but also includes sustainable business. | |

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| | (https://www.jyu.fi/en/studywithus/programmes/ibe) do not contain references to climate change or sustainability. | | | | |

4.4 United Kingdom

| Higher Education Institution: | Programme or Activity (including Description/ Raison d'être): | | | | |
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| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
| <p>Brunel University, London, England</p> <p>http://www.brunel.ac.uk</p> | <p>Centre for Research into Entrepreneurship, International Business and Innovation in Emerging Markets (CEIBIEM)</p> <p>(cf. http://www.brunel.ac.uk/bbs/research/research-centres/ceibiem/about)</p> <p>CEIBIEM addresses contemporary global concerns around international business, entrepreneurship and innovation in emerging markets. There is no explicit focus on sustainable development. However, in emerging markets, sustainable development approaches,</p> | <p>M.Sc. in “Sustainability, Entrepreneurship and Design”</p> <p>(cf. http://www.brunel.ac.uk/courses/postgraduate/sustainable-entrepreneurship-and-design-msc)</p> <p>The M.Sc. in “Sustainability, Entrepreneurship and Design” is a 12-month programme with an optional 6-month professional development phase. The course is jointly run between Institute for the Environment, School of Engineering and Design, and Brunel Business School. It fuses environmental education with design, entrepreneurial and business skills.</p> <p>M.Sc. in “Climate Change Impacts and Sustainability”</p> <p>(cf. http://www.brunel.ac.uk/courses/postgraduate/climate-change-impacts-and-sustainability-msc)</p> <p>The M.Sc. in “Climate Change Impacts and Sustainability” is a multi-school, interdisciplinary programme that explores the likely impacts of global climate change on society and the wider environment. Goal is to instil the skills to develop creative and evidenced solutions. Key areas include public health, business and economics, national and international policy and technological development, underpinned by a critical understanding of the concept of sustainability as applied to resource and energy use.</p> | | <p>The M.Sc. in “Sustainability, Entrepreneurship and Design” offers business incubator and workshop space for business start-up and prototype development, as well as internship opportunities during the 6 month professional development period.</p> | <p>The Central Research Laboratory (CRL), part of the Cathedral development group, collaborates with Brunel University and provides start-up support in the area of design and manufacturing. CRL has an explicit focus on creating economic and social sustainability (cf. http://www.cathedralgroup.com/current-projects/central-research-laboratory/).</p> |

| Higher Education Institution: | Programme or Activity (including Description/ Raison d'être): | | | | |
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| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
| | especially with regards to social entrepreneurship, often go hand in hand. | | | | |
| Imperial College London, England http://www3.imperial.ac.uk | | <p>M.Sc. in “Sustainable Energy Futures” (cf. http://www3.imperial.ac.uk/energyfutureslab/msc; https://workspace.imperial.ac.uk/energyfutureslab/Public/MSc%20brochure_Nov13-web.pdf)</p> <p>The M.Sc. in “Sustainable Energy Futures” integrates a module on “Entrepreneurship in Renewable Energy”: The module explores different elements of entrepreneurship including technology commercialisation, product positioning, new market development and financing options. Students examine the challenge of making energy entrepreneurial opportunities viable.</p> <p>M.A.(RCA)/M.Sc. in “Innovation Design Engineering (IDE)” (cf. http://www.rca.ac.uk/schools/school-of-design/innovation-design-engineering/programme-overview/)</p> <p>The M.A.(RCA)/M.Sc. in “Innovation Design Engineering (IDE)” integrates sustainability perspectives in its design process. The course fosters a collaborative approach involving multidisciplinary team working and encourages external commercial involvement.</p> | | <p>The Imperial Incubator (cf. http://www.imperialinnovations.co.uk/technology-transfer/incubator/) provides start-up support, however, there is no explicit focus on sustainable development.</p> | <p>Imperial College London is a university core partner on Climate-KIC’s master programme. (cf. http://www.climate-kic.org/national-centres/london-uk/core-partners/)</p> <p>A Master’s level degree programme and the related summer school take place in collaboration with Climate-KIC.</p> <p>The following courses feed into Imperial College’s efforts:</p> <ul style="list-style-type: none"> • Innovation Design Engineering • Sustainable Energy Futures • Environmental Technology • Environmental Engineering • Green Chemistry • Hydrology and Water Resources Management • Hydrology and Sustainable Development |

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| | | | | | <ul style="list-style-type: none"> Hydrology and Business Management <p>Imperial College London offers a range of touch points in the area of sustainability. Not all of their courses offer entrepreneurship content; however, its collaboration with Climate-KIC adds an additional element that allows students in programmes without an explicit focus on entrepreneurship to acquire relevant skills.</p> <p>The M.A./M.Sc. in "Innovation Design Engineering (IDE)" is run jointly by the Royal College of Art (RCA) and Imperial College London and support for innovation on the IDE programme is provided principally by InnovationRCA (cf. http://www.rca.ac.uk/research-innovation/innovation/).</p> |
| University of Exeter Business School, England http://business-school.exeter.ac.uk/opmba/about | | "One Planet MBA" (cf. http://business-school.exeter.ac.uk/opmba/mba_programme/) The 12-month (full-time) or 24- to 30-month (part-time Executive) One Planet MBA programme was developed in partnership with WWF International. It promotes the | | "The One Planet Sustainability Challenge" (cf. http://business-school.exeter.ac.uk/opmba/mba_programme/sustainability_cha | SETsquared Partnership (cf. http://www.setsquared.co.uk) The SETsquared Partnership is a collaboration of five research- |

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| / | | <p>development of an entrepreneurial mindset and understanding of emerging business models. Study trips, company visits, group challenges and simulations complement lectures and seminars led by professionals and academic specialists in their field. The offering includes extra-curricular workshops and events, an innovation audit of organisations, an MBA project consisting of in-company project or entrepreneurship related project.</p> <p>Skill sets students build throughout the programme include analytical, strategic thinking, team working, communication and leadership skills.</p> <p>Core modules</p> <p>There are 13 core modules covering foundations in core business functions:</p> <ul style="list-style-type: none"> • Preparing for Change • Integrated Accounting • Finance & Responsible Investment • Economics for Managers • Marketing & Customer Engagement • Managing Strategic Resources and Operations • Strategy • Strategic & Responsible Innovation Management • Igniting Change in Business • Personal Transformations • Emerging Business Models • The Entrepreneurial Mindset • Practical Insights into Data Analytics <p>Elective modules</p> | | <p>llenge/ https://www.facebook.com/opmbachallenge)</p> <p>The One Planet Sustainability Challenge, which is linked to the University of Exeter Business School One Planet MBA programme but open to other business schools, incentivizes the creation of solutions for sustainability challenges facing business. The 2-day programme includes world renowned experts and industry leaders and an opportunity to pitch participants' business solution.</p> <p>IGNITE Entrepreneur Support Unit</p> <p>(cf. http://www.exeterguid.org/ignite/about/)</p> | <p>intensive universities – Bath, Bristol, Exeter, Southampton and Surrey. At these universities they collaborate with student enterprise programmes. As part of SETsquared's Open Innovation Programme, they offer long-term relationships to Corporate Partners which enable them to develop a deep understanding of corporate partners' innovation requirements and respond with a tailored approach to each Partner.</p> <p>Whilst SETsquared covers the cleantech sector as part of their Open Innovation Programme, they do not seem to have a specific industry focus on their entrepreneurship programme (input side) working with start-ups.</p> |

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| | | <p>There are 2 'specialist' electives where students will gain a deeper understanding of the following topics:</p> <ul style="list-style-type: none"> • Entrepreneurial & Intrapreneurial Process • General Insights Through Deeper Analytics <p>With further electives available:</p> <ul style="list-style-type: none"> • Business-to-Business Marketing • Managing Around the World (Exec Only) • Biomimicry and Business: Learning from Nature • Strategic Public Relations(CIPR) tbc • Advanced Finance tbc <p>Students also have the opportunity to undertake a number of elective modules offered by Audencia, Nantes Business School as non-assessed.</p> | | <p>IGNITE is a student entrepreneur support unit. IGNITE supports social challenges through social enterprise, or helps explore and set up a commercial business.</p> <p>Green Unit</p> <p>(cf. http://www.exeter.ac.uk/sustainability/)</p> <p>Students have the opportunity to lead on a local sustainability project (projects vary year on year).</p> | |
| <p>University of Manchester, England</p> <p>http://www.manchester.ac.uk</p> | <p>The University of Manchester strategic plan for 2020 puts a strong focus on social responsibility (as a goal and key performance indicator) and environmental sustainability as an</p> | <p>B.Sc. in "Management (Innovation, Sustainability and Entrepreneurship)"</p> <p>(cf. http://www.manchester.ac.uk/study/undergraduate/courses/2015/08413/management-innovation-sustainability-and-entrepreneurship-3-years-bsc/)</p> <p>The B.Sc. in "Management" offers a specialization in</p> | <p>"Innovation and sustainability" is defined as a research theme at the Manchester Institute of Innovation Research (cf. https://research.mbs.ac.uk/innovation/)</p> | <p>The Manchester Enterprise Centre (MEC) focuses on entrepreneurship education and support (on- and off-curricular). It provides workshops, mentoring, competitions and</p> | <p>As part of the I4S (Innovation for Sustainability) project, under the leadership of The Academy of Business in Society (EABIS), the University of Manchester together with seven leading universities (Copenhagen Business School, Leuphana University Lüneburg, Nyenrode Business Universiteit,</p> |

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| | <p>enabling strategy (cf. http://www.manchester.ac.uk/discover/vision/).</p> <p>The Manchester Institute of Innovation Research, one of the largest groupings of innovation researchers in the world, has defined "Innovation and sustainability" as a research theme (cf. https://research.mbs.ac.uk/innovation/Research/Researchthemes/Innovationandsustainability.aspx)</p> <p>The Sustainable Consumption Institute (SCI) is an interdisciplinary research centre that explores explicitly the role of eco-innovation in more sustainable consumption and production. (cf. http://www.sci.manchester.ac.uk/research)</p> | <p>Innovation, Sustainability and Entrepreneurship (ISE). The specialization explores the area of strategic innovation management and sustainable development through real company case study analysis; it includes modules on entrepreneurship and small business development.</p> <p>M.Sc. "Innovation Management and Entrepreneurship (IME)" (cf. http://www.mbs.ac.uk/masters/courses/inno-management-entrepreneurship/about-the-course.aspx).</p> <p>On the M.Sc. "Innovation Management and Entrepreneurship (IME)" postgraduate students can study modules such as 'Eco-Innovation Management' and 'Water and Sanitation Planning and Policy in Developing Countries' and complete a dissertation on a topic of eco-innovation. Two modules plus a dissertation is the equivalent of half the 180 credits needed to complete the M.Sc.</p> <p>The Manchester Enterprise Centre offers a range of core and elective taught units for undergraduate students including on the sustainability agenda:</p> <ul style="list-style-type: none"> • Sustainable Development for Electrical and Electronic Engineering (cf. https://mec.portals.mbs.ac.uk/StudyEnterpriseWithUs/Undergraduateunits/SustainableDevelopment.aspx) • Cases in Sustainable Development (cf. https://mec.portals.mbs.ac.uk/StudyEnterpriseWithUs/Undergraduateunits/CasesinSustainableDevelopment.aspx) • Interdisciplinary Sustainable Development (cf. https://mec.portals.mbs.ac.uk/StudyEnterpriseWithUs/Undergraduateunits/InterdisciplinarySustainableDevelopment.aspx) | <p>Research/Research themes/Innovationandsustainability.aspx).</p> <p>"Sustainable consumption" as a research area at the Sustainable Consumption Institute (SCI) links consumption with production and focuses on systems thinking and climate change among other themes (cf. http://www.sci.manchester.ac.uk/research).</p> | <p>guest lectures. The centre supports social enterprises (cf. https://mec.portals.mbs.ac.uk/Enterpriseactivities/Socialenterprises.aspx).</p> <p>The Manchester Enterprise Centre's "Venture Further" business start-up competition selects entrepreneurial students based on four categories, one of which focuses on social/environmental ideas (cf. https://mec.portals.mbs.ac.uk/Enterpriseactivities/Competitions/VentureFurther.aspx).</p> <p>The University of Manchester Innovation Centre (UMIC) (generic offering) (cf. http://www.unic.co.uk/about/), a limited company owned by the University of Manchester, offers</p> | <p>University of Exeter, Erasmus University Rotterdam, University of Cape Town and Vlerick Leuven Ghent Management School) collaborates to study sustainability-driven innovation (SDI) (cf. https://research.mbs.ac.uk/innovation/Portals/0/docs/Innovation4Sustainability_Manchester7May_prog_SR.pdf).</p> |

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| | <p>)</p> <p>Professorship on "Innovation and Sustainability"</p> <p>(cf. http://www.sci.manchester.ac.uk/people/all/staff)</p> <p>Professorship on "System Innovation and Sustainability"</p> <p>(cf. http://www.sci.manchester.ac.uk/people/professor-frank-geels)</p> | | | <p>biotech laboratories and hi-tech facilities. However, at UMIC there is no explicit focus on climate change- or sustainability-related entrepreneurship.</p> | |
| <p>University of Nottingham, England</p> <p>http://www.nottingham.ac.uk</p> | | <p>M.Sc. in " Sustainable Energy and Entrepreneurship"</p> <p>(cf. http://www.nottingham.ac.uk/pgstudy/courses/architecture-and-built-environment/sustainable-energy-and-entrepreneurship-msc.aspx)</p> <p>The University of Nottingham offers an interdisciplinary 1-year (full-time) or 2-year (part-time) Master of Science degree with a focus on sustainable energy and entrepreneurship. Here, the Department of Architecture and Built Environment collaborate with the Nottingham University Business School.</p> <p>Creative Energy Homes Project</p> | | <p>Green technology incubator</p> <p>(cf. http://www.nottingham.ac.uk/research/collaborations/innovationpark.aspx)</p> <p>The University of Nottingham Innovation Park may be creating a new building dedicated to a green tech</p> | <p>Nottingham CleanTech Centre</p> <p>(cf. http://cleantechcentre.co.uk)</p> <p>The university partners with the independent Nottingham CleanTech Centre: Nottingham Trent University's Future Factory project, and the University of Nottingham's Ingenuity Gateway and Accelerating a Low Carbon Economy programmes are close collaborators</p> |

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| | | <p>(cf. http://www.nottingham.ac.uk/research/collaborations/industry/creativeenergyhomes.aspx)</p> <p>The University's Creative Energy Homes project is a showcase of innovative state-of-the-art energy-efficient homes of the future. It investigates how we can reduce energy in our homes by bringing together industrial partners from across the house-building and energy sector.</p> <p>The project aims to:</p> <ul style="list-style-type: none"> • stimulate sustainable design ideas • promote new ways of providing affordable, environmentally sustainable housing that are innovative in their design | | <p>incubator (to be confirmed).</p> <p>The University of Nottingham is one of four University Enterprise Zones (UEZs) across England. UEZs aim to encourage universities to strengthen their roles as strategic partners in local growth and to stimulate development of incubator space for small businesses. The University's Haydn Green Institute for Innovation and Entrepreneurship (cf. http://www.nottingham.ac.uk/business/businesscentres/hgi/index.aspx) supports these aims with its work and research around the development of enterprise and entrepreneurial skills, innovation and understanding of the commercialisation of</p> | <p>(http://cleantechcentre.co.uk/about-us/). Nottingham CleanTech Centre houses entrepreneurs, start-ups and small companies relating to all aspects of clean, green, and low carbon technologies.</p> |

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| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
| | | | | research. However, there is no explicit focus on climate change- or sustainability-related entrepreneurship. | |
| University of Reading, England http://www.reading.ac.uk | <p>Henley Centre for Sustainable Enterprise (HC4SE), Henley Business School</p> <p>(cf. http://www.henley.ac.uk/research/research-centres/henley-centre-for-sustainable-enterprise/)</p> <p>The Centre looks at sustainability challenges (such as clean energy, carbon pricing or eco-efficiency) as business opportunities. The HC4SE provides debates, dialogues, development and research projects designed to respond to its members' sustainability challenges. HC4SE</p> | <p>M.Sc. Entrepreneurship and Management</p> <p>(cf. http://www.henley.ac.uk/postgraduate/course/msc-entrepreneurship-and-management/)</p> <p>The programme focuses on lectures and seminars, case studies, entrepreneurship and business scenarios. The Entrepreneurship Project is a live case study, where students undertake a management consultancy intervention with local firms. The optional module in Social Enterprise (cf. http://www.reading.ac.uk/modules/document.aspx?modP=MM053&modYR=1415) gives students a comprehensive introduction to the social enterprise sector.</p> <p>M.Sc. in "Renewable Energy: Technology and Sustainability"</p> <p>(cf. https://www.reading.ac.uk/CME/pg-taught/cme-pgt-re.aspx)</p> <p>The programme provides students with an understanding of renewable energy and sustainable technologies, as well as carbon management and energy use in the built environment. The programme covers rapidly evolving fields that are vitally relevant to how society develops in the 21st Century. Supervised dissertation research takes place during the last four months of the programme.</p> | <p>Sustainability in the Built Environment</p> <p>(cf. http://www.reading.ac.uk/sustainability-in-the-built-environment/sbe-home.aspx) is an associated research centre of the University of Reading working on six key research clusters relating to sustainability within the built environment. The Centre combines the knowledge and expertise from cross-departmental centres of teaching and research. The research clusters are:</p> <ul style="list-style-type: none"> • Planning for sustainability • Designing for | <p>Henley Centre for Entrepreneurship (HCfE), Henley Business School (generic offering)</p> <p>(cf. http://www.henley.ac.uk/research/research-centres/henley-centre-for-entrepreneurship/)</p> <p>The HCfE provides entrepreneurship education within Henley Business School and across the University of Reading. It conducts research in the field of entrepreneurship and engages externally with the local business community and public organisations.</p> | <p>The University of Reading is a university affiliate partner on Climate-KIC's master programme.</p> <p>(cf. http://www.climate-kic.org/for-students/masters-education/#tab_0_2)</p> <p>The M.Sc. in "Renewable Energy: Technology and Sustainability" collaborates with Climate-KIC (cf. https://www.reading.ac.uk/CME/pg-taught/cme-pgt-re.aspx).</p> |

| Higher Education Institution: | Programme or Activity (including Description/ Raison d'être): | | | | |
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| Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation | |
| <p>offers community or project membership to engage with organizations outside of Henley Business School.</p> <p>The University of Reading has a strong focus on environmental policies, strategies, reports and plans (cf. http://www.reading.ac.uk/cleanandgreen/PolicyDocuments/). Its "Environmental Sustainability Strategy 2012–2017" states: "Our vision is to achieve the highest standards of environmental performance and to be recognised as an organisation that is known for environmental and sustainability excellence." The University strives to "raise awareness of research that delivers environmental or sustainability</p> | <p>M.Sc. and PGD: "Design and Management of Sustainable Built Environments"</p> <p>(cf. https://www.reading.ac.uk/CME/pg-taught/cme-pgt-dmsbe.aspx)</p> <p>The programmes provide leadership in environmental design and energy management. They are based on advanced understanding of the key subjects required for meeting carbon emission reduction targets in building sector, in the overall context of climate change and resource depletion. The focus is on an interdisciplinary approach to the design and operation of sustainable buildings and cities.</p> | <p>resilience</p> <ul style="list-style-type: none"> • Urban green infrastructure • Energy supply systems • Sustainable behaviours within the community • Promoting sustainable practices <p>Technologies for Sustainable Built Environments (TSBE), School of Construction Management and Engineering (cf. http://www.reading.ac.uk/tsbe/) is an associated research centre of the University of Reading.</p> <p>The TSBE Centre research is structured around the following themes:</p> <ul style="list-style-type: none"> • Sustainable building and | <p>The HCfE co-ordinates and conducts a range of activities, including the teaching of University-wide entrepreneurship modules, the provision of extracurricular initiatives (ranging from the Student Business Incubator, the Business Idea Clinic and the Student Entrepreneurship Society to the Ideafest business idea competition), supporting local SMEs to grow as well as offering its students the opportunity to learn, pursue placements and projects.</p> <p>There is no specific focus of the HCfE on sustainable entrepreneurship and eco-innovation.</p> | | |

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| | objectives" and promotes and raises "awareness of teaching and learning that provides staff and students with relevant sustainability literacy." | | <p>services systems</p> <ul style="list-style-type: none"> • Energy management in buildings and infrastructure systems <p>These two main themes will be supported by these areas of research:</p> <ul style="list-style-type: none"> • Climate, climate change and the built environment • Sustainable materials and structures • Innovation, design and sustainable technologies • Informatics for sustainable technologies | | |
| University of Strathclyde, Glasgow, Scotland http://www.strath.ac.uk | | <p>M.Sc. in "Environmental Entrepreneurship"</p> <p>(cf. http://www.strath.ac.uk/civeng/pg/enventrepreneurship/; http://www.strath.ac.uk/media/departments/civilengineering/dlcs/msccourseprofiles/MSc_Env_Entrepreneurship_profile-2014.pdf)</p> <p>The 1-year M.Sc. in "Environmental Entrepreneurship" is an interdisciplinary collaboration between Civil and</p> | | <p>The Strathclyde University Incubator Ltd. (cf. http://www.suilimited.com), Scotland's first business incubator, is wholly owned by the University. It</p> | |

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| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
| | | <p>Environmental Engineering, Hunter Centre for Entrepreneurship and Accounting and Finance, with contributions from Law, Mechanical & Aerospace Engineering, Design, Manufacture & Engineering Management, Naval Architecture & Marine Engineering, and Economics.</p> <p>The programme aims to convey a theoretical and practical understanding of entrepreneurship, in preparation for a career in either self-employment or in an innovative organisation. This includes the development of management, consultancy, business, engineering and technology <i>professionals</i> who have reached a stage in their careers when they are seeking or achieving increasing responsibility, or would like to refocus their career on environmental, or sustainable, entrepreneurship.</p> | | provides general start-up support, however, there is <u>no explicit focus on sustainable development</u> . | |

4.5 USA

| Higher Education Institution: | Programme or Activity (including Description/ Raison d'être): | | | | |
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| | Institutional integration | Curricula/ teaching | Research | Support of concrete start-up undertakings | External co-operation |
| <p>Babson College F.W. Olin Graduate School of Business, Wellesley, MA</p> <p>http://www.babson.edu</p> | <p>Babson College identifies its mission as “to educate entrepreneurial leaders who create great economic and social value – everywhere.” This vision comes across through every aspect of the programme and is wholly supported by the faculty, staff, and students.</p> <p>Babson is committed to integrating social and economic sustainability concepts into the business practices of this next generation of leaders and to create resilient, sustainable prosperity</p> <p>(cf. http://www.babson.edu/about-babson/sustainability)</p> | <p>Babson prides itself on the development of the Signature Learning Experience (SLE) (cf. http://www.babson.edu/Academics/graduate/mba/Pages/core-curriculum.aspx) programme, in which students prepare cross-disciplinary presentations each quarter that address real-world issues. The second half of the first year is spent working in small teams on semester-long consulting projects. Each year, several of these clients include non-profit and social enterprise organizations.</p> <p>The MBA programme offers an Entrepreneurship concentration (cf. http://www.babson.edu/Academics/graduate/mba/concentrations/Pages/default.aspx). Part of the concentration is modules on Environmental Entrepreneurship or Social Entrepreneurship (http://www.babson.edu/Academics/graduate/mba/concentrations/Pages/Entrepreneurship.aspx).</p> <p>Its undergraduate programme offers a concentration of Environmental Sustainability (cf. http://www.babson.edu/Academics/undergraduate/concentrations/Pages/environmental-sustainability.aspx).</p> <p>Babson College offers more than a dozen green-themed classes, including Imagining Sustainability, Water in America and Social Responsibility in Malaysia (cf. http://www.babson.edu/about-babson/sustainability/education/Pages/Courses.aspx).</p> | <p>A range of faculty have been committed to research on topics on the social, environmental, and economic dimensions of sustainability (cf. http://www.babson.edu/about-babson/sustainability/education/Pages/Research.aspx).</p> | <p>John E. and Alice L. Butler Venture Accelerator Program</p> <p>(cf. http://www.babson.edu/Academics/centers/blank-center/venture-accelerator/Pages/venture-accelerator-program.aspx)</p> <p>The John E. and Alice L. Butler Venture Accelerator Program supports and advances the wide variety of entrepreneurial endeavours (starting a business, creating a venture in a family enterprise, buying a business, commercializing a technology, buying a franchise, or growing a non-profit) – from ideation to exit. To do this, the Venture</p> | <p>Tri-campus Sustainability Certificate</p> <p>(cf. http://www.babson.edu/Academics/undergraduate/curriculum/pages/sustainability-certificate-program.aspx; http://www.babson.edu/about-babson/sustainability/education/Pages/Tri-Campus-Certificate.aspx)</p> <p>Addressing the challenge of using earth’s resources sustainably requires a collaborative and interdisciplinary approach, in which basic research about the causes and consequences of environmental problems is combined with an understanding of the incentives and processes for a large-scale reworking of economic activity and the technology with which to reconfigure the human effect on the natural world.</p> |

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| | <p data-bbox="407 327 642 352">/Pages/home.aspx).</p> <p data-bbox="407 416 642 879">The theme “creating impact through business” is integrated into all aspects of the Babson MBA curriculum. Ethical and sustainability issues are woven into the core curriculum, rather than being treated as separate business issues (cf. https://netimpact.org/business-as-unusual).</p> <p data-bbox="407 943 642 1385">In 2008, Babson became a signatory of the American College and University President’s Climate Commitment, with a goal of carbon neutrality by 2050. In the summer of 2010, Babson opened the Babson Sustainability Office to support, enhance, and coordinate these</p> | <p data-bbox="651 384 1281 671">Babson College offers in-classroom and outside the classroom electives. MBA students have several credit-earning opportunities that will help enhance their application of what they learned in the classroom. These opportunities include electives abroad (http://www.babson.edu/about-babson/global/mie/Pages/education-abroad.aspx), independent research and working with global and domestic organizations to help solve their business challenges (http://www.babson.edu/Academics/graduate/mba/experiential-learning/Pages/default.aspx).</p> <p data-bbox="651 735 1281 791">Other courses allow for an exploration of topics such as green marketing.</p> <p data-bbox="651 855 1281 943">Faculty members at Babson are making issues concerning social, environmental, economic responsibility, and sustainability (SEERS) central to a Babson education.</p> | | <p data-bbox="1512 327 1749 815">Accelerator Program tailors support based on venture stage and type as well as entrepreneur experience and goals providing resources at three phases – exploring, pursuing, and launching/growing. Each phase has access to faculty advising; provides open lab space in which to collaborate experiment and work.</p> <p data-bbox="1512 879 1749 1134">Hatcheries (cf. http://www.babson.edu/Academics/centers/blank-center/venture-accelerator/Pages/hatcheries.aspx)</p> <p data-bbox="1512 1198 1749 1385">As part of the John E. and Alice L. Butler Venture Accelerator Program, the undergraduate and graduate</p> | <p data-bbox="1758 327 2083 799">Wellesley, Olin, and Babson colleges provide a joint programme capable of educating students in ways that each cannot accomplish alone. By integrating business, engineering, and the liberal arts in the service of environmental sustainability, this programme provides students with the cross-disciplinary academic preparation and the cross-campus cultural collaboration experiences needed to approach environmental issues holistically.</p> <p data-bbox="1758 863 2083 1118">Summer Venture Program (cf. http://www.babson.edu/Academics/centers/blank-center/venture-accelerator/summer-venture-program/Pages/summer-venture-program.aspx)</p> <p data-bbox="1758 1182 2083 1385">The Summer Venture Program supports the most promising graduate and undergraduate entrepreneurs from Babson, Olin College of Engineering, and Wellesley College. Approx. 15 teams are chosen to</p> |

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| | <p>efforts (cf. http://www.babson.edu/about-babson/sustainability/Pages/home.aspx; http://www.entrepreneur.com/article/219236). There are a range of actions, commitments, and initiatives for making Babson more sustainable.</p> <p>The mission of the Sustainability Leadership Team is to guide the integration of sustainability into Babson's core values and to build awareness of the impacts that personal and organizational decisions have on the environment and society (cf. http://www.babson.edu/about-babson/sustainability/aboutus/Pages/default.aspx).</p> <p>The centres on</p> | | | <p>"Hatcheries" provide a vibrant atmosphere conducive to sharing ideas and information among student teams, faculty, executives-in-residence and visiting entrepreneurs.</p> <p>The Hatcheries function like incubators where student entrepreneurs have access to professional and semiprivate workspace to grow their businesses. Student businesses go through an application process before they are selected. Teams are awarded space in the Hatcheries one term at a time.</p> <p>The Lewis Institute's Social Innovation Lab (http://www.babson.edu/Academics/centers/the-lewis-institute/lab/Pages/h</p> | <p>participate in the programme each summer. Teams receive housing, work space, advisors, a speaker series, and other resources to help them and their businesses develop throughout 10 weeks.</p> <p>The Summer Venture Showcase, formerly known as Demo Day, is a culmination of the students' hard work and where they showcase their accomplishments to professional investors and the local community.</p> |

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| | <p>campus act as a resource for students interested in social value creation. The Lewis Institute for Social Innovation (cf. http://www.babson.edu/Academics/centers/the-lewis-institute/lab/Pages/home.aspx) is an influential thought leader in creating impact. The centre offers students mentorship and networking opportunities, support for social enterprise start-ups, and general guidance to the Babson community as a whole.</p> | | | <p>ome.aspx) puts ideas on social innovation into action but matching students with mentors.</p> | |
| <p>California Institute of Technology (Caltech), Pasadena, CA http://www.caltech.edu</p> | <p>Resnick Sustainability Institute (cf. http://resnick.caltech.edu)</p> <p>The Resnick Sustainability Institute is Caltech's studio for</p> | <p>Engineering courses that connect sustainability and innovation/ entrepreneurship:</p> <p>E/ME 105 ab. Product Design for the Developing World (cf. http://catalog.caltech.edu/pdf/catalog_14_15.pdf): The course emphasizes products for the Developing World. The class teaches product design methodologies informed by the special circumstances of the customers. Technologies are often indigenous or local and not "high tech". Issues of sustainability in the business sense as well as the engineering sense are included, as are cultural concerns. There is a</p> | <p>Research at the Resnick Institute fuses creativity born from multiple perspectives with fundamental science. Sustainability is at the heart of their research. Areas include different facets of Energy</p> | <p>Flow 2.0 Program (cf. http://flow.caltech.edu)</p> <p>The Resnick Sustainability Institute's Flow 2.0 Program prepares students with</p> | <p>CTEE – Caltech-Taiwan Energy Exchange (cf. http://resnick.caltech.edu/ctee.php)</p> <p>Caltech and the National Central University in Taiwan have teamed up for an international energy research</p> |

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| | <p>sustainability. It connects science and creativity to address critical problems to address critical sustainability challenges. Institute researchers address critical challenges in renewable energy and sustainability science, directed toward outcomes that have the potential to make a global impact.</p> <p>Part of the Resnick Sustainability Institute is FLoW (http://flow.caltech.edu), a mentorship-driven business plan competition.</p> | <p>particular emphasis on ultra-low cost manufacturing as well as ergonomic design. Prototyping is an important part of the course with the second quarter devoted to building and testing engineering prototypes in India. The class is characterized by mixed international teams in collaboration with St Gits University in Kerala, India. All lectures are teleconferenced between both locations. To further broaden the experience, students from Art Center College of Design also participate.</p> | <p>and Sustainability:</p> <p>Electricity Production, Fuel Production, Storage, Distribution, Energy Efficiency and Greening Industry. The Resnick Institute supports related research efforts at the following centres at Caltech:</p> <ul style="list-style-type: none"> • Powering the Planet Center for Chemical Innovation (CCI Solar) (http://www.ccisolar.caltech.edu) • Center for Bioinspired Engineering (http://bioinspired.caltech.edu) • Joint Center for Artificial Photosynthesis (http://solarfuels.hub.org) • Light-Material Interactions in Energy Conversion (LMI- | <p>projects aimed at making a positive contribution to environmental sustainability for entrepreneurial success. FLoW is a business plan competition focused on cleantech and sustainability. In addition to cleantech and clean energy, FLoW supports a broad spectrum of sustainability-related innovations including those related to natural resource management and agricultural technologies.</p> <p>FLoW 2.0 works with entrepreneurs to mitigate the major challenges that often stop them in their tracks: inadequate business training, finding money and facilities for building prototypes, and connecting with mentors who</p> | <p>collaboration. The collaboration teams faculty from universities in Taiwan with their counterparts at Caltech to investigate projects in six key sustainable energy technology areas.</p> <p>Corporate Partnerships</p> <p>(cf. http://resnick.caltech.edu/corporate-partnerships.php):</p> <p>Partners invest in the Resnick Sustainability Institute's pioneering research efforts and benefit from the deep talent pool that is synonymous with Caltech</p> |

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| | | | <p>EFRC) (http://www.efrc.caltech.edu)</p> | <p>understand their technologies and can help them advance their businesses. In partnership with UCSD's von Liebig Entrepreneurism Center (http://www.jacobsschool.ucsd.edu/vonliebig/) and working with Innovation Node – LA (IN-LA) (http://lanode.org), the programme begins with a month-long, four session online course focused on market analysis, identifying and interacting with customers, and building a viable business model for product development. FloW is open to university students and recent graduates from universities all across the US.</p> <p>There are two tracks:</p> <ul style="list-style-type: none"> • Ready to | |

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| | | | | <p>Commercialize (for ventures closer to launch)</p> <ul style="list-style-type: none"> • Transformational Idea Award (for pre-commercial research) <p>Both tracks receive the same top judging and mentoring guidance. Only the Ready to Commercialize category requires preparing a business plan for the final competition.</p> <p>The Resnick Sustainability Institute's Resonate Awards honour breakthrough achievements in energy science and sustainability. The goal of the Awards is to empower solutions and to celebrate innovators with new ideas or contributions to the field of sustainability. The</p> | |

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| | | | | <p>work can be from many fields including science, technology, economics, public policy or others (cf. http://resnick.caltech.edu/awards.php).</p> <p>Sustainability Innovation Student Challenge Award (SISCA)</p> <p>(cf. http://resnick.caltech.edu/sisca.php)</p> <p>SISCA was established by Dow to encourage and promote sustainable solutions to the world's most pressing social, economic and environmental challenges. SISCA is open to graduate students currently enrolled at Caltech and student teams with at least one team member who is currently enrolled as a Caltech graduate</p> | |

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| <p>Massachusetts Institute of Technology (MIT), Sloan School of Management, Cambridge, Massachusetts</p> <p>http://mitsloan.mit.edu</p> | <p>Sustainability Initiative</p> <p>(cf. http://mitsloan.mit.edu/sustainability/)</p> <p>The Sustainability Initiative at MIT Sloan is built on the promise of a new future. The Sustainability Initiative believes that environmental, societal, economic, business, and personal wellbeing are parts of an interconnected whole. The strains we face in each of these domains demand a different thinking and the invention of new ways of living and working.</p> <p>Sustainability studies at the Sloan School capitalize on its core strengths and key areas of research:</p> | <p>The Sustainability Initiative offers the Sustainability Certificate (cf. http://mitsloan.mit.edu/sustainability/sustainability-certificate)</p> <p>The Sustainability Certificate, an add-on track of study within the MBA/Master's degree programme, is the main sustainability offering at MIT Sloan. The programme is designed to work alongside other areas of concentration within the school so that students can optimize their time. The main components of the programme include some of MIT Sloan's trademark offerings, such as System Dynamics and Action Learning in the Sustainable Business Lab (S-Lab) course (cf. http://mitsloan.mit.edu/actionlearning/labs/s-lab.php). S-Lab provides students with a unique opportunity to explore the connection between business, the environment, and society. Through their S-Lab projects, students apply knowledge from the classroom to solve real-world problems and see first-hand how businesses are tackling the massive challenges of sustainability. In the process they develop and refine decision making tools that advance the sustainability field.</p> <p>Under the guidance of an MIT faculty mentor, interdisciplinary teams of four students engage in a six week-long project with S-Lab's partner companies and non-profit organizations.</p> <p>As students complete their time here, they participate in the Sustainability Capstone class (cf. http://mitsloan.mit.edu/sustainability/courses), an opportunity for students to solidify their sustainability leadership and ethics skill sets prior to graduation. Students</p> | <p>Various research centres and projects have a sustainability focus (cf. http://mitsloan.mit.edu/faculty/research/index.php):</p> <p>Center for Energy & Environmental Policy Research (CEEPR)</p> <p>(cf. http://mitsloan.mit.edu/faculty/research/energy.php):</p> <p>CEEPR carries out research on energy and environmental policy to inform decision making by government and industry. It draws on resources from the Sloan School of Management, the Department of Economics, and the MIT Energy Initiative (MITEI)</p> | <p>MIT Global Founders' Skills Accelerator (MIT GFSA)</p> <p>(cf. https://entrepreneurship.mit.edu/accelerator/)</p> <p>MIT GFSA offers a capstone educational opportunity for students to round out their multi-dimensional, entrepreneurial experience. GFSA takes the best teams with an interesting idea or proof of concept focused on creating impactful, innovation-driven start-ups. Teams are chosen from across MIT's schools as well from select global university partners. Selected students participate in a rigorous, educational curriculum that integrates learning by doing, mentorship</p> | <p>The Sustainability Initiative (cf. http://mitsloan.mit.edu/sustainability/) partners with leaders from the corporate, NGO, government, and hybrid sectors to help them address the complex sustainability issues facing their organizations. Whether they are launching an organization-wide sustainability campaign, addressing specific challenges, or building their own knowledge, the Sustainability Initiative challenges and inspires professionals through executive education, action learning projects, and research partnerships with faculty and students.</p> |

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| | <p>energy, innovation, and entrepreneurship. MIT is well-known for the annual Energy Conference (http://mitenergyconference.org) and Clean Energy Prize (http://cep.mit.edu). Students learn about cutting-edge green supply chain practices. The school also focuses heavily on innovation and entrepreneurship, so students can do consulting projects on sustainability within big corporations and start their own social enterprise with the support and guidance of the Martin Trust Center for Entrepreneurship (cf. https://entrepreneurship.mit.edu).</p> | <p>also pick three elective courses out of 40 curated courses from across MIT. In addition to the structured certificate program, Sloan also embeds sustainability and ethics related programming in the core curriculum. This includes the first-year core ethics requirement offered during the Sloan Innovation Period, as well as Data, Models and Decision-making and Intro to Operations.</p> <p>Outside of the offerings from the Sustainability Initiative, MIT Sloan also provides many other opportunities for experiential learning, as that is a core part of the ethos. The leadership of the Sustainability Initiative actively engages with students on refining the curriculum for the Sustainability Certificate in order to keep it as relevant and practical as possible.</p> <p>Other specialized Tracks of the MBA programme include the Entrepreneurship & Innovation Track (cf. http://mitsloan.mit.edu/mba/program-components/special-tracks-dual-degrees/entrepreneurship-and-innovation-track/). The E&I Track focuses on launching and developing emerging technology companies. It leads to a certificate in Entrepreneurship & Innovation, in addition to the MBA degree. The curriculum emphasizes team practice linked to real-world entrepreneurial projects, balances theoretical and practitioner education, and provides thorough exposure to the many building blocks of an entrepreneurial career.</p> <p>MIT Sloan Social Impact Fellowship (SSIF) (cf. http://ssif.mit.edu)</p> <p>SSIF gives MBA students an opportunity to explore social</p> | <p>(http://mitei.mit.edu).</p> <p>MITEI was built according to a template laid out in the 2006 Report of the Energy Research Council. The report called for new approaches to multidisciplinary research, education across school and department boundaries. It also emphasized the importance of another MIT strength - partnering with industry as a prime locus for the clean energy transformation needed to address economic, environmental, and security concerns associated with the current energy system.</p> <p>Drawing on the</p> | <p>and access to resources. Teams make significant progress towards identifying their beachhead market, building the right product and securing initial customers or partners so that they are ready to hit escape velocity by Demo Day.</p> <p>Throughout the three-summer-month duration of GFSA, founders are granted a monthly stipend, allowing them to make a full-time commitment to working on their ventures. In addition, each team has the opportunity to earn up to \$20,000, equity free, based on its progress against monthly milestones. This fuels team development and give them the resources they need to accelerate their start-ups.</p> | |

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| | | <p>impact careers without undue financial distress. The Fellowship funds students interning over the summer at local, national, and international social impact organizations. Students work with a development-focused start-up throughout autumn and then travel to the site during January.</p> <p>Martin Trust Center for Entrepreneurship (cf. https://entrepreneurship.mit.edu)</p> <p>The Martin Trust Center for MIT Entrepreneurship provides the expertise, support and connections needed for MIT students to become effective entrepreneurs. The Center serves all MIT students, across all schools, across all disciplines. There is strong collaboration with other MIT departments, labs, centres and groups to connect students with the best entrepreneurship programming across the Institute.</p> <p>Courses in entrepreneurship offered by the Martin Trust Center with a sustainability focus include 15.366 Energy Ventures.</p> | <p>recommendations in that report, MITEI created a new platform for highly focused energy-related activity at MIT. The MITEI programme includes research, education, campus energy management and outreach programs that cover all areas of energy supply and demand, security, and environmental impact.</p> <p>The MITEI interdisciplinary research programme focuses on the following:</p> <ul style="list-style-type: none"> • Innovative technologies and underlying policy analysis that will improve how we produce, distribute and consume conventional | <p>MIT Global Startup Labs (GSL)</p> <p>(cf. http://gsl.mit.edu)</p> <p>MIT GSL trains and funds top MIT students and alumni to conduct technology incubator courses globally. Participants mentor start-ups, network with entrepreneurs and VCs, learn and teach real-world technology platforms, and explore exotic locales.</p> <p>At each partner, MIT GSL brings together gifted university students from the region to guide them through a real-world entrepreneurial experience. Courses focus on ideation, market research, pitching, and</p> | |

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| | | | <p>energy.</p> <ul style="list-style-type: none"> • Transformational technologies to develop alternative energy sources that can supplement and displace fossil fuels, including the economic, management, social science and policy dimensions needed for this transformation. • Global systems to meet energy and environmental challenges through a multidisciplinary systems approach that integrates policy design and technology development. • Tools to enable innovation, transformation and simulation of global energy systems through strategic basic | appropriate technology platforms, culminating with a pitch and prototype competition. | |

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| | | | <p>research.</p> <p>The Sustainability Initiative</p> <p>(cf. http://mitsloan.mit.edu/sustainability/focal-areas) supports a few Focal Areas of research and practice:</p> <ul style="list-style-type: none"> • Climate of Change • Driving the Future • Hardwiring Sustainability • Social Sustainability Hub <p>Grounded in faculty research, and deeply engaged with industry and public policy, these streams of work aim to change the conversation about sustainability, and accelerate innovation.</p> | | |

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| <p>Pinchot University, formerly known as Bainbridge Graduate Institute (BGI), Seattle</p> <p>http://pinchot.edu</p> | <p>Pinchot University is a graduate school focused on sustainable business. An MBA from Pinchot University has one central purpose: to change business for good. Pinchot University's programmes weave sustainability into every course. The university prides itself being the first sustainable business programme in the country.</p> <p>A degree from Pinchot University immerses students in a community focused on innovation and sustainability that extends to the root of the quadruple bottom line: people, planet, profit, and purpose (cf. https://netimpact.org)</p> | <p>Pinchot University offers master's degrees in three formats (http://pinchot.edu/schools/): The MBA in "Sustainable Systems" is a "hybrid" option that combines online classes with once-monthly learning intensives at the IslandWood campus on Bainbridge Island. The MBA in "Sustainable Business" "metro" programme meets weekly at the Seattle campus. Both programs are designed to accommodate the needs of working adults. Additionally, Pinchot University offers rotating graduate certificates that focus specifically on different fields of sustainability, such as food and agriculture, the built environment, and energy solutions (cf. https://netimpact.org/business-as-unusual).</p> <p>The Pinchot University education combines traditional instruction and course work with team-based applied projects, research, and field experience to solve real-world business challenges. Pinchot University faculty design instructional activities to encourage students' active engagement with the learning content, creating interactive dialogue. This approach stimulates critical thinking, analysis and application of theory to complex business situations.</p> <p>Curriculum design and delivery methods are selected based on content, topic, learner needs, learning objectives, optimal pedagogy and computer technology capabilities.</p> | | <p>Fledge LLC (cf. http://fledge.co)</p> <p>Fledge LLC calls itself the first "conscious company" incubator. It was launched in 2012 by Bainbridge Graduate Institute faculty Luni Libes.</p> <p>Fledge offers a 10-week programme of guidance, education, and mentorship, plus a large and growing network of support from past fledglings and hundreds of mentors. The programme accepts 6 to 7 participants.</p> <p>Goal of Fledge is to help foster a wave of companies that make not just a measurable impact in the world, but a noticeable</p> | <p>A portion of the curriculum is designed and delivered by student-led design teams. In year two, students participate in consulting teams that serve an external client during the fall quarter.</p> |

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| | <p>/business-as-unusual).</p> <p>Students learn from an array of permanent and visiting faculty, including academics who carry international reputations in sustainable business and expert practitioners who carry backgrounds of extensive real-world business experience.</p> | | | <p>improvement in the lives of everyone on the planet.</p> <p>Fledge nurtures and invests in companies serving the large and growing number of consumers who are: environmentally conscious, energy conscious, health conscious, conscious of sustainability, of community, and even conscious of consumption itself.</p> <p>Entrepreneurs with plans to fill the unmet needs of these “conscious consumers” currently find little support, as the entrepreneurial infrastructure is primarily aimed at fostering “tech” start-ups (be they software, “clean” or “biotech”). Seattle has a strong set of such services, including: Startup</p> | |

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| | | | | <p>Weekend, TechStars, Founders Co-op, and SURF Incubator, along with numerous tech-centric venture capital funds. However, all of these focus and filter on technology as a means to meet customers' needs, missing opportunities which are not tech-centric.</p> <p>(Cf. http://www.bgi.edu/news/bainbridge-graduate-institute-faculty-luni-libes-launches-fledge-the-first-conscious-company-incubator/)</p> | |
| <p>Presidio Graduate School (PGS), San Francisco, California</p> <p>http://www.presidio.edu</p> | <p>PGS focuses solely on sustainable management education. It embeds sustainability in every course (cf. http://www.presidio.edu/about). A whole-systems orientation rests on coursework in systems thinking, sustainability literacy, ethics and social</p> | <p>PGS offers master's degrees in the following formats: MBA, MPA, and Dual MBA/MPA programme in "Sustainable Management"; JD/MBA with University of California Hastings College of the Law (cf. http://www.presidio.edu/academics). Additionally, PGS offers several specialized certificate options for professionals (cf. http://www.presidio.edu/academics/presidiopro/certificates):</p> <ul style="list-style-type: none"> • Certificate in Sustainable Management • Certificate in Sustainable Energy Management • Certificate in Sports and Sustainability <p>Every core course is sustainability-based. The curriculum</p> | <p>Research & Case Development Program permits students to do applied research and craft teaching case studies focusing on the development of new sustainable management practices and tools (http://www.presidio</p> | | <p>Field study partnerships in sustainable energy sector; in each Experiential Learning course, student teams partner with external organizations to create a custom-made project based on the specific needs of their partner (cf. http://www.presidio.edu/academics/experiential-learning). Teams of 3-6 students work for a semester (16 weeks) on a project that is aligned with</p> |

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| | <p>justice. The integrated curriculum is designed around three fundamental concepts that define competence in sustainable management: sustainable systems, sustainable leadership, and business excellence.</p> <p>The PGS curriculum is notable in that the MBA and MPA programs are integrated. That is, 50% of each program is in common with the other, with MBA and MPA students learning in the same classes. This integration reflects the PGS perspective that society's sustainability challenges cannot be solved at scale without the strategic cooperation of governance and business, and that managers and social</p> | <p>integrates real-world sustainability projects with clients as part of an Experiential Learning programme. As a part of the integrated and entrepreneurship-focused MPA and MBA Capstone Program, students design and launch new social ventures, conceive and propose transformative public administration and public policy innovations, and collaborate on product design prototypes (cf. http://www.presidio.edu/student-life/community-events).</p> | <p>o.edu/sabre-case-study). The programme is implemented through an elective independent study course offering (http://www.presidio.edu/SUS8600).</p> | | <p>curriculum goals for a particular course. They are challenged to apply both traditional management concepts and metrics as well as to integrate sustainability metrics that take into account social and natural capital. International Sustainability Club students undertake sustainability projects at overseas partner locations.</p> <p>Corporation-sponsored innovation projects: PGS partner with large companies under which the company's corporate venture fund will support product development initiatives of PGS students and alumni.</p> |

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| | entrepreneurs must be educated to make this relationship productive. | | | | |
| Santa Clara University, Santa Clara, California http://www.scu.edu | Miller Center for Social Entrepreneurship (cf. http://www.scu.edu/socialbenefit/) The mission of the Miller Center for Social Entrepreneurship is to accelerate global, innovation-based entrepreneurship in service to humanity, which builds on the wider mission of SCU, a Jesuit institution. The Center prides itself for a unique integrated approach. Its programmes consist of three core offerings (cf. http://www.scu.edu/socialbenefit/): | Miller Center for Social Entrepreneurship, Global Social Benefit Fellows programme (cf. http://www.scu.edu/socialbenefit/education/) The education programme leverages the learning asset of the GSBI alumni network of 300+ social enterprises for SCU faculty and students, and the broader Jesuit educational network. The Center shares lessons learned about social entrepreneurship through its 9-month long student fellowships, dedicated classes, research grants, and collaboration with scholars at Jesuit and other universities. The Global Social Benefit Fellowship provides a comprehensive programme of mentored, field-based study and action research for undergraduate juniors within the GSBI worldwide alumni network of social entrepreneurs. The fellowship combines a 7-week summer field experience in the developing world with two quarters of academically rigorous research. This is the Center's flagship educational programme and provides practical action research opportunities for students to investigate how social enterprises provide essential goods and services in emerging economies. From their field research, fellows acquire a depth of understanding about how frugal innovation technologies are being used in the developing world. The fellowship provides a unique learning opportunity for engineering students to understand the role of technologies in sustainable economic development. Faculty research mentors support student research in their particular discipline. The fellowship emphasizes leadership | The Willem P. Roelandts and Maria Constantino-Roelandts Grant Program (cf. http://scu.edu/socialbenefit/education/Roelandts/) The Willem P. Roelandts and Maria Constantino-Roelandts Grant Program in Science and Technology for Social Benefit, administered by the Miller Center for Social Entrepreneurship, supports faculty and student research across campus. Over the past four years, the Center has awarded roughly \$200,000 in research funding, science, | Global Social Benefit Institute (GSBI) (cf. http://www.scu.edu/socialbenefit/entrepreneurship/gsbi/) The GSBI Accelerator prepares advanced social enterprises for growing impact and securing capital investments. Over the course of 10 months, social entrepreneurs work alongside Silicon Valley mentors to complete online modules, which refine their business models and identify the growth opportunities. For 10 days in August, social entrepreneurs from around the world come to Santa Clara University for the in-residence component of the | readMiller Center for Social Entrepreneurship (cf. http://www.scu.edu/socialbenefit/) Except for the Global Social Benefit Fellows programme, the Center's focus is on the environment outside of Santa Clara University. Mentors are Silicon Valley entrepreneurs, investors and technology leaders and the beneficiaries of the programme are social entrepreneurs, in most cases with a focus on developing countries. |

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| | <ul style="list-style-type: none"> • The Global Social Benefit Institute (GSBI) pairs social entrepreneurs (outside of Santa Clara University) with Silicon Valley mentors, to help them reach their profound potential and scale. GSBI has three distinct programmes tailored for social entrepreneurs at different stages in their lifecycle. • The Impact Capital initiative develops new investment vehicles and provides thought leadership to the impact investment community. • The Global Social Benefit Fellows programme provides life-changing educational opportunities for undergraduate students to participate in action research | <p>development, personal growth in self-awareness, and reflection on one's vocation.</p> <p>The Center teaches social entrepreneurship in partnership with other campus units. In partnership with the University Honors Program, the Center offers Honors 20: Technology for Social Justice (fulfils the STS core curriculum requirement) and Honors 120: Entrepreneurship for Social Justice (fulfils Advanced Writing core curriculum requirement). The Center teaches two courses foundational for the Global Social Benefit Fellowship, ELSJ 134 Introduction to Social Entrepreneurship and ELSJ 135 Research in Social Entrepreneurship (these fulfil the STS and Experiential Learning for Social Justice core curriculum requirements). In the School of Engineering, in partnership with the Frugal Innovation Lab (cf. http://www.scu.edu/engineering/frugal/), the Center offers a graduate course ENGR 341 Innovation, Design, and Spirituality.</p> <p>School of Engineering, Frugal Innovation Lab</p> <p>The Frugal Innovation Lab's purpose is to combine instruction, innovation and immersion experiences for SCU students to develop appropriate, adaptable, affordable, and accessible technologies, products and solutions for emerging markets. The Frugal Innovation Lab fosters collaboration between students, social entrepreneurs, corporate partners and faculty to incubate and scale development projects in areas such as clean energy, global health, mobile technologies, and sustainable livelihood development. Closely partnering with the Miller Center for Social Entrepreneurship, collaborative efforts between the two entities aim to scale the impact of social enterprises worldwide.</p> | <p>engineering and social science faculty and students, especially for frugal innovation projects. Through this grants programme the Center fosters shared research and learning among the social entrepreneurship movement and the campus community.</p> | <p>programme. Content experts teach a customized curriculum to address a financing plan for scaling, organizational development, talent management, marketing strategy and execution, and operational excellence at scale. The in-residence culminates in a pitch to a room full of impact investors. The end goal is to prepare the social entrepreneur to be investment ready and prepare to scale their impact.</p> <p>GSBI Online helps early-stage social enterprises formalize their business models through a 6 month mentored capacity development programme conducted online. The programme helps early stage social entrepreneurs</p> | |

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| | <p>with social enterprises.</p> <p>The Center has a strategic initiative to support social entrepreneurs addressing climate change, and all of its programmes are focused on sustainability within the organizations it supports (including, for example, decentralized, renewable energy generation and attempt to minimize resource input and maximize output). There is a strong and inherent overlap between the domains of social and sustainable (green) entrepreneurship addressing urgent environmental concerns.</p> | | | <p>blueprint and validate their businesses through lessons focused on business strategy, operational planning, metrics, and financials. The end result in a refined business plan, an on-point elevator pitch, a solid annual operating plan, and creative marketing collateral.</p> | |
| <p>Stanford University, Stanford, California</p> | <p>TomKat Center for Sustainable Energy</p> <p>(cf. http://tomkat.stanford.edu)</p> | <p>Stanford Graduate School of Business (GSB)</p> <p>(cf. http://www.gsb.stanford.edu)</p> | <p>Stanford Social Innovation Review (SSIR)</p> <p>(cf. http://ssir.stanford.edu)</p> | <p>There are various efforts to support and incentivize start-up undertakings by Stanford students as</p> | <p>Besides the facilitation of external learning opportunities by various Stanford departments and centres (such as the TomKat Center for</p> |

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| <p>http://www.stanford.edu</p> | <p>d.edu; http://engineering.stanford.edu/organization/tomkat-center-sustainable-energy)</p> <p>The TomKat Center for Sustainable Energy at Stanford University aspires to a more sustainable global future by supporting education, research and innovation in science, technology and policy. It provides grants and mentorship to incentivize activities in the area of sustainable energy.</p> <p>In research, the TomKat Center awards seed grants to Stanford faculty performing research that supports the mission to make electricity and transportation systems more sustainable.</p> | <p>The Stanford Graduate School of Business offers a robust social impact curriculum [in its MBA Program], emphasizing cross-sector, multi-disciplinary collaboration. The core curriculum includes cases on design for social good, forest conservation, sourcing products in developing countries, and microfinance in Africa. Critical Analytical Thinking, a required seminar, pushes students to evaluate trade-offs in topics such as school choice or the electric car industry.</p> <p>(Cf. https://netimpact.org/business-as-unusual)</p> <p>The Stanford MBA Program offers a flexible approach in that it allows students to personalize their experience in their second year through electives, seminars, a joint or dual degree (http://www.gsb.stanford.edu/programs/mba/academic-experience/joint-dual-degrees), and courses at other Stanford schools (http://explorecourses.stanford.edu). Courses outside Stanford GSB up to approx. 15 class units can be applied towards the MBA degree. These units can also be applied towards a second graduate degree.</p> <p>The joint MS Environment and Resources/MBA degree programme with the School of Earth Sciences, Emmett Interdisciplinary Program in Environment and Resources (E-IPER) (cf. https://earth.stanford.edu/eiper) offers students the opportunity to develop a background in the science, engineering, and technology that underlie environmental problems.</p> <p>The Stanford Graduate School of Business offers Social Innovation Study Trips (cf. http://www.gsb.stanford.edu/programs/mba/academic-experience/global-experiences). It allows students to get to</p> | <p>http://www.ssireview.org/about/overview)</p> <p><i>Stanford Social Innovation Review</i> is a magazine and website that covers cross-sector solutions to global problems. SSIR is written for and by social change leaders in the non-profit, business, and government sectors who view collaboration as key to solving environmental, social, and economic justice issues. Published at the Stanford Center on Philanthropy and Civil Society (cf. http://paccenter.stanford.edu) at Stanford University, SSIR bridges academic theory and practice with ideas about achieving social</p> | <p>mentioned in other categories.</p> <p>A dedicated vehicle is StartX (cf. http://startx.stanford.edu). StartX is a non-profit organization whose mission is to accelerate the development of Stanford's top entrepreneurs through experiential education.</p> <p>Founders in StartX's accelerator get access to world-class mentors who are dedicated to helping them grow their companies and providing long-term guidance on vision and strategy. Their backgrounds range from serial entrepreneurs and venture capitalists to professors and lecturers from the Computer Science department and</p> | <p>Sustainable Energy and the Center for Social Innovation at the Graduate School of Business) student clubs (http://csi.gsb.stanford.edu/student-clubs) facilitate an interaction with external organizations.</p> <p>The Energy Club (https://gsbenergyclub.wordpress.com/) explores issues impacting the oil and gas, wind energy, solar energy, fuel cell, and power sectors, as well as energy security and the environment. The club seeks to help students pursue their energy related interests and aspirations and develop strong connections to the Stanford energy community.</p> <p>The Social Innovation Club (http://www.gsbclub.org) serves GSB students interested in exploring innovative ways to tackle the world's most pressing social challenges and improving livelihoods for low-income populations domestically and internationally.</p> |

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| | <p>In education, it awards grants to faculty and academic staff members teaching courses that introduce sustainable energy concepts and opportunities to Stanford students.</p> <p>The TomKat Center also incentivizes external collaboration by providing paid undergraduate internships at Stanford-affiliated sustainable energy start-up companies.</p> <p>The Center also has a strong focus on the connection between research and practice: Innovation transfer grants are awarded to Stanford teams to bridge the gap between government support for basic science and private-sector and venture</p> | <p>know another country, its people, and organizations through the lens of a social or environmental theme (such as education, healthcare, climate change, or economic development). More than 20 students are given an opportunity to integrate into their learning the perspectives of thought leaders from for-profit, government, philanthropic, and non-profit organizations. A short-term project with an in-country host will be conducted to further their mission and the respective student team's learning goals. After the trip, students can dig deeper into their trip topics with a faculty-guided independent study project or project funding and travel support from the Center for Social Innovation at Stanford GSB (http://csi.gsb.stanford.edu/).</p> <p>The Center for Social Innovation develops case material and courses disseminated to Stanford students and beyond. The Center's Public Management and Social Innovation Programs (PM/SI) educates leaders to lead global social and environmental change (cf. http://csi.gsb.stanford.edu/mba-public-management-program). The certificate programme provides students the opportunity to focus their educational efforts in domain areas such as environment, international development, healthcare and education. They can also shape their academic efforts in approaches to social impact such as corporate social responsibility, social entrepreneurship, non-profit management or government.</p> <p>The Center's Impact Lab (cf. http://csi.gsb.stanford.edu/impact-labs) provides experiential learning activities that facilitate student exploration of various approaches to have social and environmental impact in the world. This is completed by "Summer Internships with a Purpose" (cf. http://csi.gsb.stanford.edu/summer-internships-with-a-purpose) which the Center facilitates.</p> | <p>change. SSIR covers a wide range of subjects, from microfinance and green businesses to social networks and human rights.</p> <p>The Center for Social Innovation at the Graduate School of Business conducts research on the Environment (http://csi.gsb.stanford.edu/environment) and Social Entrepreneurship (http://csi.gsb.stanford.edu/social-entrepreneurship) among other themes.</p> <p>Emmett Interdisciplinary Program in Environment and Resources (E-IPER) (cf. https://earth.stanford.edu/eiper)</p> | <p>d.school. Within the community StartX has Entrepreneurs in Residence (EIRs). These are Stanford alumni founders who work on their own start-ups out of a shared office space and have already had successful exits, funding rounds, and product releases with their previous start-ups. EIRs help mentor and support all founders in the programme.</p> <p>StartX does not have a specific focus on sustainable entrepreneurship or climate change. However, in conjunction with other Stanford programmes and centres (e.g., TomKat Center) there is an opportunity to focus on an area within sustainable entrepreneurship such as green</p> | <p>The Sustainable Business Club connects students with business, technology and policy leaders in fields such as sustainable services, clean energy, water resources, and climate change.</p> |

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| | <p>funding for emerging innovations. Additionally, it connects researchers to domain experts including successful entrepreneurs, innovators, executives with experience in start-ups and venture investors as part of a mentorship programme to stimulate innovation transfer.</p> <p>Center for Social Innovation at the Stanford Graduate School of Business (http://csi.gsb.stanford.edu/).</p> <p>The Center for Social innovation's mission is to bring social and environmental change in the world. Through research, education, and experiential learning the Center builds capacity of individuals</p> | | <p>E-IPER trains interdisciplinary scholars and leaders to address the world's most challenging environmental and sustainability problems.</p> <p>E-IPER students combine academic disciplines including natural and earth sciences, engineering, economics, humanities, social sciences, law, health, policy, and business to yield new insights and novel solutions to urgent global problems such as energy use, climate change, food security, freshwater availability, human health and sanitation, depletion of ocean resources, land degradation, and biodiversity loss.</p> | <p>technologies.</p> | |

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| | <p>and organizations to develop innovative solutions to complex problems. The Center envisions a networked community of leaders actively working across sectors, frontiers, and disciplines to build a more just, sustainable, and prosperous world. (Cf. http://csi.gsb.stanford.edu/about-csi)</p> <p>d.school – Hasso Plattner Institute of Design</p> <p>(cf. http://dschool.stanford.edu)</p> <p>The d.school, part of the Engineering department, focuses on “design thinking” offers classes to enrolled Stanford graduate students. The d.school does not</p> | | <p>E-IPER offers a PhD in “Environment and Resources”. E-IPER's degrees are awarded by the School of Earth Sciences (https://earth.stanford.edu).</p> <p>While E-IPER by itself does not have a dedicated focus on entrepreneurship research, it is offered in conjunction with, e.g., courses at the Graduate School of Business and thus allows for an integration of a range of sustainability themes and business topics including entrepreneurship.</p> | | |

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| | <p>grant degrees; instead it serves as a university-wide hub for innovation where students from engineering, the arts, medicine, education, law and the social sciences come to take classes together and work on projects.</p> <p>The d.school takes an interdisciplinary approach and focuses on big challenges (including the domains of sustainability and climate change) (cf. http://dschool.stanford.edu/wp-content/uploads/2010/09/dschool-fact-sheet-2012.pdf). One class, <i>Design for Sustainable Abundance</i>, for example, concentrates on a human-centred approach to sustainability. By means of its design thinking methodology</p> | | | | |

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| | it brings together innovators "who can see beyond the way the world is to the way it could be." Classes immerse students in an experiential learning environment. The d.school's focus is on the design process because they seek to equip students with a methodology for producing reliably innovative results in any field. Focus is on creating innovators rather than any particular innovation. | | | | |
| UC Berkeley, Berkeley, California http://www.berkeley.edu | <p>The strength of UC Berkeley's Haas School is the legacy of positively impacting society that courses through the veins of those on the Berkeley campus, with social impact infused throughout the curriculum (cf. https://netimpact.org/business-as-unusual).</p> | <p>Haas offers a broad range of classes in sustainability and corporate responsibility (cf. http://responsiblebusiness.haas.berkeley.edu/students/courses.html; http://haas.berkeley.edu/IBSI/thembaexperience/index.html):</p> <p>MBA courses (autumn 2014):</p> <ul style="list-style-type: none"> • Haas Socially Responsible Investment Fund (MBA 292J-1) • Intrapreneurship for Sustainability: Driving Change from Within Organizations (MBA 292T-11) • Social Investing- Recent Findings in Management and Finance (MBA 292I-11) • Business and Natural Resources: Sustainable Use of Ecosystems (MBA/EWMBA292T-12) | <p>The scope of the Center for Responsible Business' research spans across multiple issues and functional areas connected to sustainable enterprise (cf. http://responsiblebusiness.haas.berkeley.edu/faculty/research.html).</p> | <p>Cleantech to Market (C2M), which is part of the Energy Institute at Haas Business School (cf. http://ei.haas.berkeley.edu/c2m/), is a partnership between students, scientists, engineers, and professionals to translate cleantech research, green chemistry, and water research into market opportunities. C2M</p> | <p>The Center for Information Technology Research in the Interest of Society (CITRIS) (cf. http://citrisc-uc.org) is a public entity, closely affiliated with the University of California, which focuses on the application of new and innovative technologies. CITRIS was established to address the most pressing social and environmental issues facing California. To meet this goal, the Center focuses its research on four core initiatives:</p> <ul style="list-style-type: none"> • CITRIS Sustainable |

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| | <p>Sustainability is built into the core values (cf. http://haas.berkeley.edu/strategicplan/culture) at Haas. Furthermore, developing current and future leaders of businesses and society entails living up to international standards such as the United Nation's Global Compact. As such Haas is committed to the Principles of Responsible Management Education (PRME) (cf. http://www.unprme.org; http://responsiblebusiness.haas.berkeley.edu/Reports/Berkeley%20Haas%202013%20PRME%20REPORT.pdf). Berkeley-Haas is a pioneer of PRME and works to develop and meet standards of environmental performance through the PRME network and commitment as</p> | <p>MBA courses (spring 2015):</p> <ul style="list-style-type: none"> • Business Solutions for Global Mega-Trends (MBA 292T-3A) • Strategic & Sustainable Business Solutions (MBA 292C-1) • Corporate Governance: Shareholders, Stakeholders and Corporate Control (MBA/EW 292T-1) • Haas Socially Responsible Investment Fund (MBA 292T-2) <p>Undergraduate courses (autumn 2014):</p> <ul style="list-style-type: none"> • Strategic CSR and Consulting Projects (UGBA 192P-1) <p>Undergraduate courses (spring 2015):</p> <ul style="list-style-type: none"> • The Social, Political and Ethical Environment of Business (UGBA 107-1) • Colloquium on the Social, Political and Ethical Environment of Business (UGBA 177) • Business and Human Rights (UGBA 196-3) <p>Social impact is deeply incorporated into the Haas School's learning. Students organize the Haas Impact Investing Network (HIIN) (cf. http://nonprofit.haas.berkeley.edu/programs/haas-impact-investing-network.html) and Haas Socially Responsible Investment (SRI) Fund (cf. http://responsiblebusiness.haas.berkeley.edu/programs/haasrifund.html). HIIN teams go through the full impact investing process and invest \$50,000 in a start-up, while SRI is the first and largest student-led SRI fund in a leading business school.</p> <p>Haas also offers experiential learning courses called Social Sector Solutions (S3) (cf. http://nonprofit.haas.berkeley.edu/socialsectorsolutions/),</p> | <p>The Moskowitz Research Program (cf. http://responsiblebusiness.haas.berkeley.edu/programs/moskowitzresearchprogram.html) at the Center for Responsible Business examines the foundations and trends in the socially responsible investing industry and issues the Moskowitz Prize, the only global award recognizing outstanding quantitative work on socially responsible investing.</p> <p>The research goals of the Berkeley Center for Green Chemistry (BCGC) are to develop novel chemical processes and materials, informed by the principles of green chemistry</p> | <p>interfaces with three distinct groups:</p> <ul style="list-style-type: none"> • <u>Researchers and Entrepreneurs</u>: C2M first evaluates and selects promising cleantech inventions from UC Berkeley and other leading universities, Lawrence Berkeley National Laboratory and other Department of Energy labs, and existing start-ups. • <u>Graduate Students</u>: C2M then selects commercialization teams comprising top UC Berkeley graduate students from over 20 programmes, including business, engineering, science, law, policy, and the Energy & Resources Group. C2M matches their academic and work experience with each project. • <u>Cleantech</u> | <p>Infrastructures Initiative</p> <ul style="list-style-type: none"> • CITRIS Connected Communities Initiative • CITRIS People and Robots Initiative • CITRIS Health Initiative <p>With its laboratories and renowned faculty experts, CITRIS serves as an incubator for translating new ideas into working prototypes. As a university-based research centre, CITRIS is committed to furthering UC's educational mission and creating opportunities to learn emerging skills. With the Berkeley Marvell NanoLab, The Foundry at CITRIS startup incubator, and the CITRIS Invention Lab, CITRIS offers facilities to build prototypes and demonstration models for projects "from the nanoscale to urban scale". Once a proof of concept has been tested and refined, it is ready for launch to industrial partners, public agencies, and other potential users. The final step is to connect these innovations with the networks that will benefit from and promote their implementation.</p> |

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| | <p>well as through the efforts of our passionate students, the Haas green team & the UC Berkeley's Office of Sustainability (cf. http://responsiblebusiness.haas.berkeley.edu/about/index.html).</p> <p>Haas has a newly established Institute for Business and Social Impact (IBSI) (cf. http://haas.berkeley.edu/IBSI/), which brings together the Center for Responsible Business (CRB), Center for Nonprofit and Public Leadership (CNPL), Graduate Program in Health Management, and the Global Social Venture Competition (GSVC) under one roof.</p> <p>The institute's mission is to inspire</p> | <p>where student teams partner with McKinsey consultants and work on a semester-long non-profit consulting project. S3 is offered by the Center for Nonprofit and Public Leadership (cf. http://nonprofit.haas.berkeley.edu).</p> <p>Social entrepreneurs have the opportunity to take an applied course, Social Lean Launchpad (cf. http://mba.haas.berkeley.edu/academics/applied-innovation.html).</p> <p>Another applied innovation course is the Lean Launchpad (cf. http://mba.haas.berkeley.edu/academics/applied-innovation.html). This course provides real world, hands-on learning on what it is like to actually start a high-tech company. The goal is to create an entrepreneurial experience where students are exposed to all of the pressure and demands of the real world in an early stage start-up. Teams use a business model to brainstorm each part of a company and customer development to get out of the classroom to see whether anyone would use the product. Finally, based on the feedback gathered, teams rapidly iterate the product to build something that customers would use and buy.</p> <p>The Sustainable Products & Solutions (SPS) Program (cf. http://responsiblebusiness.haas.berkeley.edu/programs/index.html), sponsored by The Dow Chemical Company Foundation in collaboration with the College of Chemistry, creates a multi-disciplinary learning and research environment where the building blocks of sustainability – society, science, engineering, environment, and finance – are all considered simultaneously as new products and solutions are explored.</p> | <p>and the priorities of the environmental health science (cf. http://bcgc.berkeley.edu).</p> <p>The Energy & Resources Group's (ERG) research efforts currently include the following areas:</p> <ul style="list-style-type: none"> • Transforming and decarbonizing the local to global energy system • Drivers of international development and the impacts on water and ecological resources • Design and transformation of the built environment • Role of smart systems to enable the understanding and wise use of natural and constructed systems | <p>Professionals: C2M supports the teams with leading cleantech industry professionals who bring deep subject matter expertise (e.g., electric grid operations, storage, economics, early stage venture). They help guide the students as speakers, mentors, and contacts.</p> <p>The result is 1,000 hours of technology evaluation and market assessment for each project. Students experience the rewards and challenges of moving cleantech to market; researchers and entrepreneurs gain valuable business feedback on their research; and professionals engage with fresh talent and new ideas.</p> | <p>The CITRIS Sustainable Infrastructures Initiative (cf. http://citris-uc.org/initiatives/sustainable-infrastructures/) pursues information technology research in energy, water, and transportation as parts of the cyber-infrastructure of a sustainable society.</p> <p>The Foundry @ CITRIS (cf. http://foundry.citris-uc.org; http://citris-uc.org/initiatives/foundry/) was created to help entrepreneurs build companies that make a significant impact on the world. A new economy is developing at the intersection of hardware, software and services. The Foundry provides access to design, manufacturing & business development tools, along with a community of entrepreneurs and experts to transform entrepreneurial teams into founders.</p> <p>The California Institute for Energy and Environment (CIEE) (cf. http://uc-ciee.org), based</p> |

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| <p>and empower members of the Berkeley-Haas community to develop innovative solutions to pressing social and environmental challenges.</p> <p>Building upon over a decade of research, teaching, and industry engagement, the Center for Responsible Business (CRB) (cf. http://responsiblebusiness.haas.berkeley.edu/about/index.html) brings students, companies and faculty together to explore issues of corporate responsibility and sustainability and inspire leaders who redefine good business. CRB considers itself an "action-tank".</p> <p>Topics such as</p> | <p>The programme has three areas of focus:</p> <ul style="list-style-type: none"> • Sustainable Supply Chain Management: Assessing the environmental, social, and economic impacts of, and encouraging good governance practices throughout, the lifecycles of goods and services. • Sustainable Consumption: Understanding resource management, the circular economy, and the value of nature and developing products and solutions to better manage world consumption. • World Challenges: Investigating overarching issues of corporate governance, finance, and society to address major social issues, including water, health, and housing, by taking scalable, market-based approaches to develop and grow sustainable communities. <p>Lester Center for Entrepreneurship (cf. http://entrepreneurship.berkeley.edu)</p> <p>The Lester Center for Entrepreneurship provides entrepreneurship education and scholarly research in innovation. Its offerings include Steve Blank's Lean LaunchPad class, the National Science Foundation's Innovation Corps, a partnership with the Skydeck Accelerator and others. The Lester Center for Entrepreneurship is an integral part of the innovation ecosystem at UC Berkeley.</p> <p>Courses in entrepreneurship offered by the Lester Center with a social entrepreneurship focus include (cf. http://entrepreneurship.berkeley.edu/students/courses/):</p> <p>Graduate courses:</p> | <p>ERG does not have an explicit focus on entrepreneurship but tackles relevant issues in the area of sustainable development and climate change in an interdisciplinary fashion and encourages engagement with government, industry, and civil society "in the field".</p> <p>(cf. http://erg.berkeley.edu/research/)</p> <p>The Laboratory for Manufacturing and Sustainability in Mechanical Engineering conducts fundamental research that promotes sustainable manufacturing. Research projects</p> | <p>SkyDeck Berkeley (cf. http://skydeck.berkeley.edu; http://entrepreneurship.berkeley.edu/students/scale/skydeck/)</p> <p>SkyDeck Berkeley is one of the first research university start-up accelerators developed to foster entrepreneurial excellence through personalized engagement and key alliances among the University, National Lab, Local Government & Private Sector.</p> <p>SkyDeck's "mission is to provide UC Berkeley start-ups with access to the best tools and resources to cultivate their vision and grow their businesses." It was created as a joint venture among UC</p> | <p>at the University of California, conducts public-interest energy research, and initiate, plan, manage, and administer high-impact research programmes with experts at UC, other universities, government, industry, and non-profit organizations. CIEE partners with the California Energy Commission, the California Public Utilities Commission, the U.S. Department of Energy, utilities, and other research sponsors to help form the agenda for research in energy science, technology, and policy – identifying the most critical avenues in support of California's energy goals.</p> <p>The course "Strategic and Sustainable Business Solutions" at Haas Business School (formerly called "Strategic CSR & Projects") (cf. http://responsiblebusiness.haas.berkeley.edu/students/projectcourse.html) offers major firms the opportunity to tap the energy, ideas and expertise of Haas students who come into the class with experience and skills in sectors as diverse as business, policy, engineering</p> | |

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| | <p>strategic corporate responsibility, social enterprise, social investing, and metrics of sustainability are explored in a robust series of programmes and through research and teaching. Experiential learning, featuring exposure to the complex challenges facing today's business leaders, is at the core of the CRB's initiatives.</p> <p>The Berkeley Center for Green Chemistry (BCGC) advances green chemistry through interdisciplinary scholarship. It consists of faculty, researchers and students in the College of Chemistry, School of Public Health, College of Engineering, College of Natural Resources, the Berkeley School of Law and the Haas</p> | <ul style="list-style-type: none"> • 292N. Social Entrepreneurship • 294. Social Impact Speaker Series • 295T. Social Lean Launchpad (3) <p>Undergraduate courses:</p> <ul style="list-style-type: none"> • 195S. Entrepreneurship to Address Global Poverty <p>Berkeley Center for Green Chemistry (BCGC) (cf. http://bcgc.berkeley.edu)</p> <p>BCGC's interdisciplinary curricula teach society's future leaders to think critically about new technologies. The BCGC Class schedule includes the following courses:</p> <ul style="list-style-type: none"> • "Greener Solutions", a course that partners teams of students with local businesses, non-profits or government agencies to advance green chemistry solutions. • "Green Chemistry: An Interdisciplinary Approach to Sustainability", a course taking speakers from several different departments who all share their perspective in relation to Sustainability and Green Chemistry. • "Green Chemistry and Sustainable Design", a course discussing the advancement of Green Chemistry and sustainable design. <p>The Energy & Resources Group (ERG), an interdisciplinary graduate programme at UC Berkeley focuses on education and research for a sustainable environment and a just society. The</p> | <p>have an applied focus (cf. http://lma.berkeley.edu/research.html)</p> | <p>Berkeley's College of Engineering, Haas School of Business, and the Vice Chancellor for Research Office. SkyDeck combines the consulting know-how of traditional accelerators with the resources of a research university.</p> <p>SkyDeck does not have a specific focus on sustainable entrepreneurship but, together with the various resources at UC Berkeley, enables a concentration also on ideas driven by sustainable development or climate change.</p> <p>Big Ideas@Berkeley (cf. http://bigideas.berkeley.edu)</p> <p>Big Ideas@Berkeley is</p> | <p>and environment.</p> <p>The Net Impact chapter at Haas organizes the Social Impact Speaker Series each fall, which is open to all students and features panels that consist of experts across a variety of functions and industries.</p> <p>The Berkeley Center for Green Chemistry (BCGC) is part of the Interdisciplinary Network for Green Chemistry (IN4GC). IN4GC was created by researchers from a number of leading universities and organizations to link scholars who share an interest in green chemistry and, specifically, its broader business, economic, social and political implications as well as its role in achieving the societal goal of sustainability (cf. https://bcgc.berkeley.edu/interdisciplinary-network-green-chemistry). Its mission is to provide a forum for ongoing dialogue between social scientists and chemists who seek to catalyze, through innovative research and education, the implementation</p> |

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| | <p>School of Business.</p> <p>The Center focuses on the integration of sustainable and innovative chemistry and engineering with an understanding of the health and ecosystem effects of synthetic chemicals and the ways in which policy and law guide industrial innovation and change.</p> | <p>ERG model combines a core curriculum, a shared learning environment, and access to faculty across UC Berkeley (cf. http://erg.berkeley.edu/academics/program/).</p> | | <p>an annual contest aimed at providing funding, support, and encouragement to interdisciplinary teams of students who have "big ideas." Since its founding in 2006, Big Ideas@ Berkeley has inspired innovative and high-impact student-led projects aimed at solving problems that matter to this generation. By encouraging novel proposals and then supporting concrete next steps, Big Ideas is helping contest winners make an impact all over the world.</p> <p>Contest categories include "Clean & Sustainable Energy Alternatives", "Food System Innovations" and "Information Technology for Society".</p> | <p>of green chemistry principles throughout the global chemical enterprise.</p> |
| UC Santa | The Bren School of Environmental | Master of "Environmental Science and Management" (MESM) | The Bren School Strategic | UCSB Office of Technology & | Faculty Impact |

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| Barbara, Santa Barbara, California http://www.ucsb.edu | <p>Science and Management is dedicated to the interdisciplinary education of students interested in social and environmental careers (cf. http://www.bren.ucsb.edu)</p> <p>"Eco-Entrepreneurship" is a core topic at the Bren School which has its roots in environmental science.</p> <p>Sustainability-relevant topics like energy, environmental science and biodiversity are key research foci of the Bren School.</p> <p>Professorship in "Corporate Environmental Management" (cf. http://www.bren.ucsb.edu)</p> | <p>(cf. http://www.bren.ucsb.edu/academics/MESM.html)</p> <p>MESM is a 2-year professional degree programme designed for individuals who plan to enter or re-enter the workforce upon graduation. The programme focuses on application and problem-solving and has three parts: the first-year core curriculum, the second-year work in one of seven Specializations, and the Group Project or Eco-Entrepreneurship Project. Example courses focus on subjects such as Life Cycle Assessment, Business and the Environment, or Carbon Accounting and Carbon Footprints.</p> <p>Module in "Corporate Environmental Management (CEM)" (cf. http://www.bren.ucsb.edu/academics/mesm_specialization/orp_env_mgt.htm)</p> <p>The module in "Corporate Environmental Management" provides for a specialization as part of the MESM and conveys how private-sector firms may address environmental and natural resource issues in a manner that also promotes shareholder value, thus creating a link between the quality of environmental and natural resources and a firm's overall market objectives.</p> <p>Module in "Eco-Entrepreneurship" (cf. http://www.bren.ucsb.edu/academics/eco_entrepreneur.htm)</p> | <p>Environmental Research Initiative (SERI) (cf. http://www.bren.ucsb.edu/research/SERI.htm)</p> <p>SERI takes an interdisciplinary approach addressing environmental challenges. SERI was launched in 2013 as part of the Bren School Strategic Plan and is intended to leverage and scale that strength across disciplines by creating new collaborations aimed at developing solutions to some of today's grand environmental problems.</p> <p>The Bren School provides resources</p> | <p>Industry Alliances (TIA) Startup Support Program (cf. http://tia.ucsb.edu/entrepreneurs/startup-support-program/)</p> <p>The Startup Support Program is a program established to help UCSB startup companies. The programme provides one-on-one customized support covering a broad range of topics, services, and resources. Anyone in the UCSB community who is considering starting up a company or who has already launched a new venture-based on UCSB research is eligible for this programme.</p> <p>The list of UC Santa Barbara spin-offs includes a range of</p> | <p>(cf. http://www.bren.ucsb.edu/news/home_fac_impact.htm)</p> <p>The Bren School prides itself of faculty members who play leading roles in advising government agencies, corporations, and non-profit organizations about science, management, and policy questions.</p> <p>In addition to consulting engagements, faculty's own research is often conducted to support government agencies in identifying and selecting policy options, and their work as part of such entities as the UC Center for Environmental Implications of Nanotechnology lead to interest from government agencies as they to develop rules, guidelines, and regulations related to new technologies.</p> <p>Capstone Project/Module in "Corporate Environmental Management" (cf.</p> |

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| | <p>b.edu/people/faculty/gary_libecap.htm; http://www.bren.ucsb.edu/career/specializations/cem.html)</p> <p>The specialization in Corporate Environmental Management (CEM) grounds students in how private-sector firms may address environmental and natural resource issues in a manner that also promotes shareholder value, thus creating the important link between the quality of environmental and natural resources and a firm's overall market objectives.</p> | <p>The module in "Eco-Entrepreneurship (Eco-E)" is part of the MESM and enhances other electives (specializations) by providing a special focus on eco-entrepreneurship. The module is a joint initiative between the Bren School and the Technology Management Program of the College of Engineering. Eco-E students pursue additional coursework and activities that provide them with skills and support to launch new ventures, products, and technologies that address society's environmental and resource problems.</p> <p>The Bren School and the Technology Management Program at the College of Engineering allow for elective courses to be taken across programmes. Both Eco-E and CEM integrate well with certificate programmes at TMP (i.e., electives taken at TMP count towards CEM, Eco-E and GPMP (cf. http://www.tmp.ucsb.edu/certificate-programs)).</p> | <p>to jump-start new collaborative partnerships around a specific research topic. The respective topic will also be integrated into the Bren master's and PhD curricula, the Bren public colloquium series, and campus-wide activities.</p> | <p>environment technology companies (cf. http://tia.ucsb.edu/entrepreneurs/pastpresent-ucsb-startups/).</p> <p>UCSB New Venture Competition (<i>generic offering</i>) (cf. http://www.tmp.ucsb.edu/nvc)</p> <p>The UCSB New Venture Competition is an opportunity for any UCSB student to learn how to start a business.</p> <p>The Forbes magazine lists UC Santa Barbara as one of the USA's most entrepreneurial universities (cf. http://www.forbes.com/sites/johngreathouse/2014/09/14/startup-wars-uc-santa-barbara-beats-wharton-and-harvard/).</p> | <p>http://www.bren.ucsb.edu/research/masters_projects_landing.htm; https://www.ics.uci.edu/prospect/en/opportunities/applied-learning/)</p> <p>The capstone of the MESM program is the Group Project or Eco-E Project. The Eco-E focus, unique to the Bren School, is a 10-unit supplement to any specialization designed to provide students with the skills to launch social business ventures addressing environmental issues. Each group project involves small groups of students partnering with outside clients to solve a real-world environmental problem.</p> <p>Eco-Entrepreneurship Advisory Council (http://www.bren.ucsb.edu/partnerships/eco_council.htm)</p> <p>The Eco-Entrepreneurship Advisory Council (EEAC) guides, supports, and promotes eco-entrepreneurship education at</p> |

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| | | | | <p>The article highlights that a success factor of the entrepreneurship programme is the fact that it is located inside the Engineering department: "Although the classes are open to students of all disciplines, the Program's primary focus in on educating 'techpreneurs.'"</p> | <p>the Bren School, and serves as the primary conduit between the School and the entrepreneurial and investor communities.</p> |

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