**The Sustainable Development Goals Curriculum Mapping Report**

**Introduction**

The [UN Sustainable Development Goals](https://www.un.org/sustainabledevelopment/sustainable-development-goals/) (SDGs) are a set of 17 goals created by the United Nations in 2015, committing the signatories to aim for progress towards all of the goals by 2030. The framework sets out 169 individual targets and 230 indicators to provide guidance and a means of monitoring progress. The goals were chosen for their broadness and attempted to include areas that would improve the lives of all worldwide, with the aim of leaving no one behind. The goals span from tackling poverty, hunger, gender inequality, life on land, life in the oceans and climate change, to peace and justice.

In January 2020, the University of Liverpool, alongside Liverpool Guild of Students, signed the [SDG Accord,](https://www.sdgaccord.org/) which is a pledge from institutions to deliver the goals, and involves an annual monitoring and reporting process to ensure institutions are keeping on track with their commitment. Further development in sustainability has been made since, with the formation of a Sustainability Board and six new sustainability focused working groups, as outlined in the [University’s Sustainability Strategy.](https://www.liverpool.ac.uk/media/livacuk/sustainability/Sustainability%2CPolicy%2Cfor%2CCouncil.pdf)

Quality Education is Goal Number 4 of the SDGs; education is embedded throughout the framework as one of the key drivers to achieving the goals. Sustainable Development Goals can be embedded into all stages of education, from primary school, all the way up to higher education institutions. We believe that incorporating the SDGs into the University curriculum is an important step towards instilling a real-life knowledge of the SDGs and responsibility for the sustainability to students more widely. As included in the [University’s Curriculum 2021,](https://www.liverpool.ac.uk/centre-for-innovation-in-education/curriculum-resources/) the University aims for students to become Global Citizens who will be employable in a huge variety of fields and shape future research. By normalising the SDGs, the goals are more likely to be considered in future decision making.

The University’s Sustainability Team have been working on embedding the SDGs on a strategic level, and a route map has been created to achieve this (see below). The mapping and analysis of modules is one of the key sections to enable the University to become a key leader in progressing towards SDGs, as SDG inclusion at a module level will encourage the growth of graduate agents with the ability to create change. Furthermore, SDG engagement is important when demonstrating the impact of research and helping to link all areas in University and fostering collaborations, as well as increasing the profile of the University through leadership and contributing to SDG framework through civil engagement.

The aim of the SDG Curriculum Mapping Project, led by Liverpool Guild of Students, was to map the curricula across a range of subjects and across the different faculties against the SDGs in order to discover the degree to which University teaching already includes the goals and, in doing so, identify gaps that are able to be filled.

The wider aims of the project are to:

* Provide information on the extent to which the SDGs are currently embedded into a sample of curricula
* Consider the feasibility of mapping the curriculum on a larger scale, providing the groundwork to be able to replicate or adjust the mapping across different departments across the University
* Identify areas of best practice which can then be published as case studies.
* inform module leaders and module approval boards of the potential for the embedding the SDGs into their delivery plans with the aim of enhancing relevance to current issues arising from social, environmental, and economic sustainability.
* Provide an opportunity for students to take a lead on influencing the change in their curriculum and pushing the University to take a more impactful approach to sustainability in Higher Education.

The work on this project has been carried out in collaboration with the Centre for Innovation in Education which was an integral part of the project when considering the long-term aims of the SDG Mapping project in integrating the goals into the curriculum.

This project started with training for students in February 2020, with the module audits completed by July 2020.





**The Mapping Process**

The Guild worked with [Students Organising for Sustainability (SOS-UK),](https://sustainability.nus.org.uk/) a charity alongside NUS who had set up a similar project at the University of Winchester, and who had developed a spreadsheet mapping tool. This tool allows student volunteers to capture information about the inclusion of each SDG in each of the modules audited, as well capturing other relevant information from the modules, such as the teaching methods used. SOS-UK trained 62 students, both in person and online. The training involved an introduction to the Sustainable Development Goals as well as explaining their relevance to the University. Following this, the spreadsheet mapping tool was demonstrated and then time was given for the students to practice mapping their modules, following which the mapping work was continued in their own time.

Students mapped their own modules and could use either the module descriptions found online or the description in their module handbook. This allowed them to make a decision based on more detailed information as well as provide useful examples in the further information section. The aim was to have students involved in as much of the process as possible, and so students were involved in analysing the data following the collection too.  In total, 289 modules were mapped, ranging across all three schools - Health and Life Sciences, Science and Engineering and Humanities and Social Sciences.

The following is a breakdown of the 62 students by Faculty:

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| **Faculty** | **Number of Students** |
| Humanities and Social Sciences | 24 |
| Health and Life Sciences | 11 |
| Science and Engineering | 27 |

 The following is a breakdown of the modules mapped across departments:

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| **School/Department**  | **Number of modules mapped**  |
| Accounting and Finance   | 7  |
| Arts  | 10  |
| Computer Science  | 12  |
| Electrical Engineering and Electronics  | 44  |
| Environmental Sciences  | 80  |
| Health Sciences   | 9  |
| Histories, Languages and Cultures  | 5  |
| Law and Social Justice  | 19  |
| Life Sciences  | 21  |
| Management  | 45  |
| Medicine  | 5  |
| Physical Sciences  | 14  |
| Psychology  | 18  |

**Module Evaluation**

The SDG Mapping Project asked students to mark how well their modules related to each of the 17 SDGs. They decided whether there was no relation whatsoever to the goal in the module, whether the module had some focus or relevance in the module, or whether the module had a significant/strong focus on the SDGs. Here, the modules are presented with an overall view of the SDGs included in them, with further break down by Faculty. Due to the data collected, further analysis could be done by looking at the focus of SDGs by Department as well as by CATS level.



For the majority of the 17 goals, over 50% of the modules mapped did not mention the goal. Each goal has been included with some significance in between 10-30% of modules .The goals that were included in the greatest number of modules were ‘Decent work and economic growth’, ‘Quality education’, ‘Industry, innovation and infrastructure’ and ‘Good health and wellbeing’, with the goals of ‘Clean water and sanitation’, Life below water’ and ‘Zero hunger’ particularly lacking.

When looking at the modules individually, each of the modules mapped did include significant focus on at least one SDG.

**Faculty Analysis**

In the Faculty of Health and Life Sciences, the goals that were included to either some level or significant level in the modules were ‘Good Health and Wellbeing’. ‘Quality education’ and ‘Gender equality’ have a high level of focus, while the goals which were included in the least number of modules were ‘Life below water’, ‘Climate Action’ and ‘Industry, innovation and infrastructure’.

‘Peaceful, justice and strong institutions’, ‘Gender equality’ and ‘Decent work and economic growth’ were the goals that were included the most in this faculty. A limited number of modules were found that related to ‘Life below water’ and ‘Affordable and clean energy’.

The goal of ‘Industry, innovation, and infrastructure’ is included in the highest number of modules among the 17 goals in Science and Engineering. ‘Sustainable Cities and Communities’, ‘Climate Action’ and ‘Good Health and Wellbeing’ perform well, however goals that are included less than the others include ‘Peaceful, justice and strong institutions’ and ‘Zero hunger’.

**Wider Aspects and Methods**

Part of the audit included scoring the modules on wider aspects and methods of teaching. Through the practical aspects of the delivery of the courses, students can gain key skills that can enable them to drive change towards achieving the SDGs. This can be achieved through methods such as experiential project work and simulation, as well as providing opportunities to gain experience in taking real-world action and collaborative problem solving. By auditing these aspects of the modules, it provides direction for staff when considering how best to embed the SDGs into modules effectively. These methods of teaching are also important to take into account as some modules may not seem integrally connected to the goals in terms of the knowledge they offer, however the projects may include some problem-based learning or simulation that may be able to be related to the SDGs.

Over 90% of the modules promoted critical thinking skills, however less than 40% included taking real-world action. This is significant when considering how to include SDGs in a module, as encouraging real-world action on SDGs is important to promote, as well as promoting knowledge of the SDGs themselves.

Over two thirds of modules included at least some case studies and problem-based learning, while the other types of interactive learning are only used in around 50% of the modules.

**Further information**

Selections from the information provided by students in both the mapping project’s ‘Further information’ section, as well as the Course Representative’s Enhancement Project Reports, have been included to provide an insight into the recurring themes documented, while offering some further recommendations that could be taken forward into the next stage of the project.

**Identifying Successes**

Many students wrote about modules that include content related to the SDGs, but without specifically mentioning them:

*The Immune System in Health and Disease module, as the name would suggest, had a large focus on Good Health and Wellbeing, however lectures within the module also focussed on the immune response to parasites in deprived regions, with a substantial amount of poverty, hunger and sanitation problems; despite this being unintentional without any focus on the SDG itself. Addressing the SDGs within this series of lectures would be beneficial in addressing the UN's designated SDGs and setting the scene for focus prior to the commencement of study.*(*Life Sciences*)

It is interesting to note that the only students to write in further information section that the module specifically mentioned the SDGs were in the Department of Environmental Sciences.

**Identifying Gaps and Opportunities**

There were many useful examples of specific recommendations for the inclusion of the goals, both in the modules, or further inclusion where some goals appear already. Some of the students went further and offered recommendations for each individual module:

*Despite Law LLB promoting some goals well, it lacked in promoting others, such as looking at how the legal system currently could aim towards the goal of gender inequality by offering women the same legal opportunities as men, if the degree looked further into this, then a degree more focused on sustainability would be created. (Law)*
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*MATH111 currently lacks a lot of motivation behind the coursework; students are taught how to use computers to solve mathematical problems, but are only given a set of disparate projects to work on. If some (or all) of the projects were based on the SDGs, it would not only significantly increase awareness and understanding of the goals, but would also give the students a greater degree of motivation. Seeing how the skills you are learning can be used to help others, especially at the beginning of the degree (where MATH111 is placed), would increase student engagement and satisfaction with the course. (Maths)*
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*… lots of scope to include more sustainability issues in this module, for example it discussed the concept of ‘co-creation of value’ in the service business environment by consumer and producer, but it missed the point on how the consumers and producers can also team up to co-create service quality that is environmentally sustainable.* *(International Business)*

**Practical Suggestions**

There were some particularly useful and original, practical suggestions for including SDGs in courses, some of which may also be relevant for the modules that are seen as less related to the SDGs due to their practical nature.

Several suggested adjustments to assessments:

*In order to improve those which are the least effective, making more explicit links to the goals in lectures could be useful. Using the SDGs as the basis for laboratory and computer practicals is also another recommendation, as well as having a greater number of exam questions specifically related to them. (Geography)*
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*Where there is an equal weightage between exams and coursework assignments, inclusion of a topic closely dealing with the sustainability goals must be made in the assignments so that students research more about the particular goal. Group work in broad modules like globalisation should include at least one activity where students need to identify and research on sustainability within their university environment… Awarding additional credits for students who take actions related to the sustainability goals through active participation at the Green Guild in the academic year.*(*MSc International Business*)

**No Relevance**

For a small number of modules, it was acknowledged that the inclusion of SDGs were not as relevant as they may be for other courses:

*Almost all courses are not directly related to sustainable development. This has something to do with the nature of the profession, because the accounting profession is more concerned with the collation and analysis of information. (Accounting and Finance)*

**General Suggestions**

*Direct incorporation of SDGs can be made by creating a new module focusing on SDGs considering its contemporary relevance and student interest.  (*Law)
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*Key ideas would be to incorporate a module that was purely sustainability based and involve organisations to come in and discuss key ideas with students alongside their normal modules- this would encourage wider reading and general awareness of lifestyle. Additionally, within the SSLC initiatives, the SDGs should be incorporated into the meetings with specific goals addressed at every chance. Audits like this one may also greatly enhance improvements throughout the university in terms of ways in which all schools can provide opportunities to engage with sustainability and encourage discussion and action. Other ideas could be to create outreach activities within the local and regional communities to enable university students to interact with school students so that geography (and other) young people can kick start their understanding of the SDGs prior to university enrolment.*(*Geography*)
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*More MSc projects which are innovative and provide solutions for the challenging problems faced by the industries in promoting the SDGs can be introduced.*

*Field trips to organisations which promote the SDGs by the use of technology which is taught in the course modules or more guest talks by members from such organisations would inspire students better.*

*More access to competitions which promote the course in using the knowledge to solve problems faced in achieving the targets of the SDGs. This creates enthusiasm and motivation for students and also recognition for students who come up with brilliant solutions. They can be further promoted on social platforms so that the organisations looking for potential candidates and such solutions for Sustainable Development can recruit these students thereby bringing a good recognition to the Department and the University. (MSc Microelectronic Systems*)

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 *The main suggestion is instead of having a great focus on identification of global issues, we should also consider looking at solutions and encourage students within the discipline to think critically about solutions which will in-turn incur a change in levels of SDGs present within university.*(*Geography and Planning*)

**Conclusion**

The mapping project has shown the ability to find the success and gaps in each School, as well as identifying which goals are particularly lacking across all modules assessed. A large proportion of the modules do touch upon at least one SDG, which is probably due to the 17 goals covering such a wide range of topics. This offers an opportunity to highlight the SDGs throughout a wide range, if not all, departments. A large proportion of the students considered the ability for their modules to increase the inclusion of the goals within the modules and for the few modules where the SDGs initially may not seem to relate, there is the potential to explore inclusion through assessment and methods of teaching. The student involvement in this project was particularly beneficial due to the insight that they were able to provide on specific modules. This is allowed for the gathering of a range of insightful and useful suggestions.

**Recommendations and Proposed Outcomes**

As this pilot project has shown, a wealth of information can be gathered from the mapping exercise, regarding the gaps and opportunities, as well as recommendations for improvements on the students’ specific course. These are the Guild’s recommendations for how to take the project further and have a wider impact.

* The report is to be shared with the **Education for Sustainable Development (ESD) Working Group** with a view to securing their early support to continue with this research, broaden its scope and **inform their action plans**.
* The Guild should continue this project and expand it out to **collaborate with other departments**, to allow for a broader insight into the successes and gaps across the university and to collate department specific recommendations.
* A step taken so far in engaging staff in the University was during the Learning and Teaching Conference 2020 where the process and findings of the project were discussed in a workshop, which was also an opportunity for staff to input their ideas into the project. There was interest in carrying out from staff from certain departments, and so the next step could **be creating key contacts in departments** to help roll the programme out more widely.
* The departmental contacts will also be useful for feeding back recommendations, sharing best practice  **to the ESD Working Group** on their progress.
* The Guild should **provide training** in liaison with SOS-UK for the new students involved, as well as be responsible for collating the data collected.
* As curriculum auditors and course reps students should be key to the process moving forward, due to the wealth of knowledge they can provide on their courses. As well as it being a skills development opportunity, there is a potential social opportunity for the students involved and the development of an interactive network facilitating **greater student engagement with curriculum design** as recommended in the QAA Sustainability Guidance.
* Mapping against the SDG should **feature in SSLC meetings** as a means of ensuring that curricula remain relevant in preparing graduates to **meet the challenges of today**.
* The results of SDG mapping should be used to inform the future **module design and approval** processes