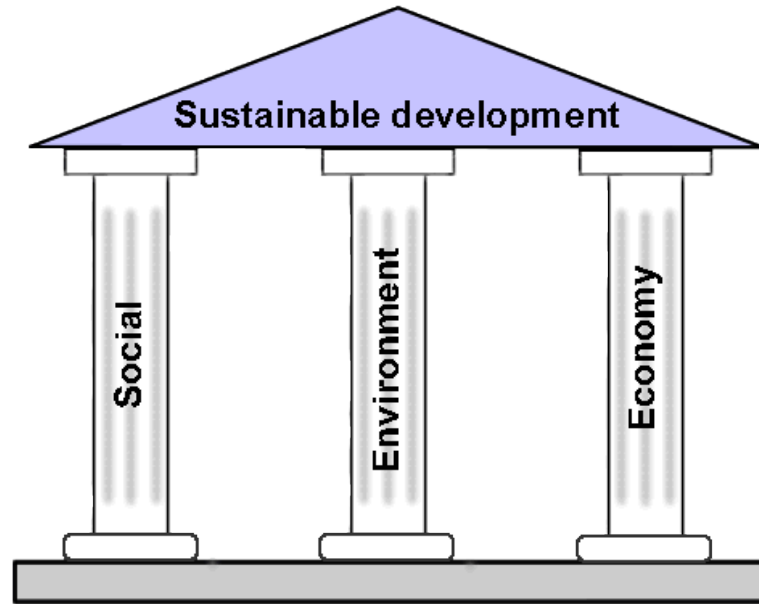




for
Sustainable Development
(#VIP4SD)

Sustainable Development



Global and holistic approach to economic development that not only focuses on **economic** growth and ending extreme poverty, but also combines this with **social** fairness and justice and **environmental** sustainability.

1972



1987



1992



2000



2012



2015



The **SDGs** are part of Resolution 70/1 of the United Nations General Assembly: "Transforming our World: the **2030 Agenda** for Sustainable Development".

SDGs provide the framework and guiding principle for Sustainable Development and ESD



“Target 4.7:
By 2030, ensure that **all learners** acquire knowledge and skills needed to promote sustainable development, including, among others, through **Education for Sustainable Development**”

In 2025 the global student population in Further and Higher Education will reach more than **260 million**

- (Goddard, 2011)



Given our untapped responsibility to mobilise our global cl



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How can we best partner with our students now and in the future to leverage this potential to its full in the pursuit of the SDGs?



What innovative methods exist for embedding
Education for Sustainable Development in
undergraduate curricula that satisfy the demands of our
students and go beyond raising their awareness, but
offer a platform on which the can make tangible
contributions to Agenda 2030 NOW?



What innovative methods exist for embedding
Education for Sustainable Development (ESD) in
undergraduate curricula?

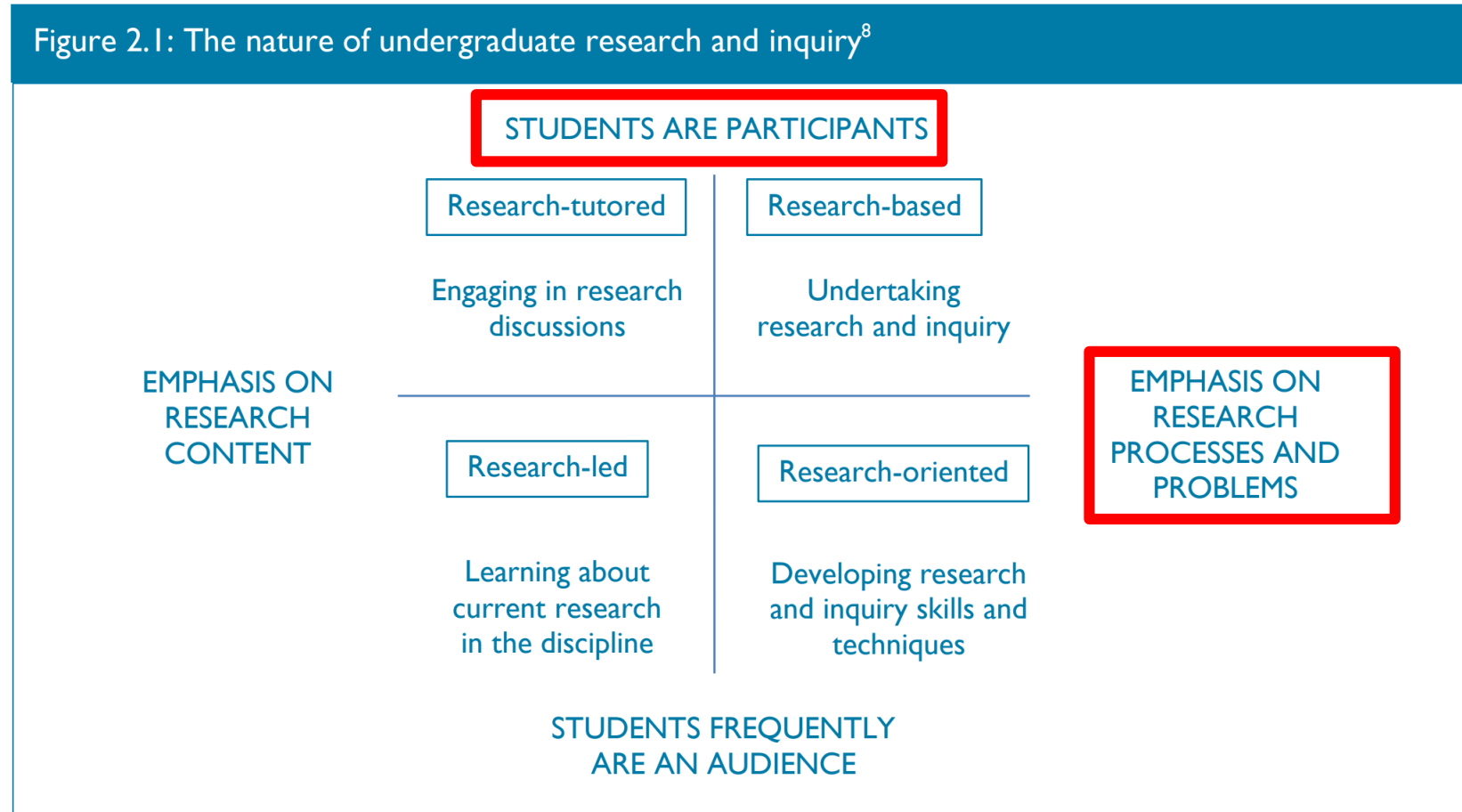
Research-Based Education (RBE)

“... learning for sustainability”

Relationships between Research and Teaching



Relationships between Research and Teaching



(Healey, 2009)

Research-Based Education (RBE)

Research-Based Education, where
students become research active,
undertaking research and inquiry
- (Griffiths, 2007)

Students are encouraged to become
‘knowledge producers’ as opposed
to **‘consumers’** in tackling **real-
world problems**
- (Healey and Jenkins, 2009)

Research and Teaching Nexus... VIP4SD

Research on the SDGs
Interdisciplinary and
transdisciplinary research
Innovations and solutions
National & local
implementation
Capacity building for
research

RESEARCH



EDUCATION



Education for sustainable
development
Jobs for implementing
the SDGs
Capacity building
Mobilising young people

Governance and
operations aligned with
SDGs
Incorporate into
university reporting

OPERATIONS & GOVERNANCE



EXTERNAL LEADERSHIP



Public engagement
Cross-sectoral dialogue
and action
Policy development and
advocacy
Advocacy for sector role
Demonstrate sector
commitment

Research-Based Education (RBE)



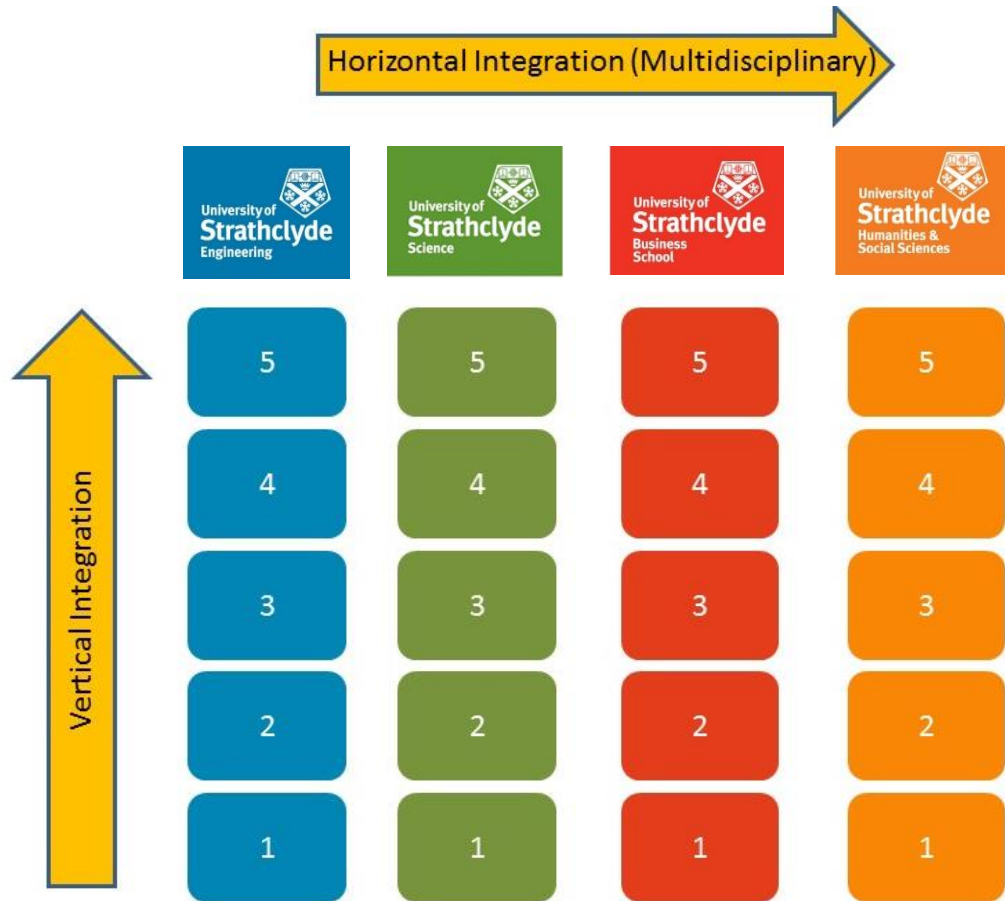
Interdisciplinary working

Research-Based Education (RBE)



Interdisciplinary working and learning between students of different year groups and research staff on 'real' research projects with pathways to impact

Research-Based Education (RBE)



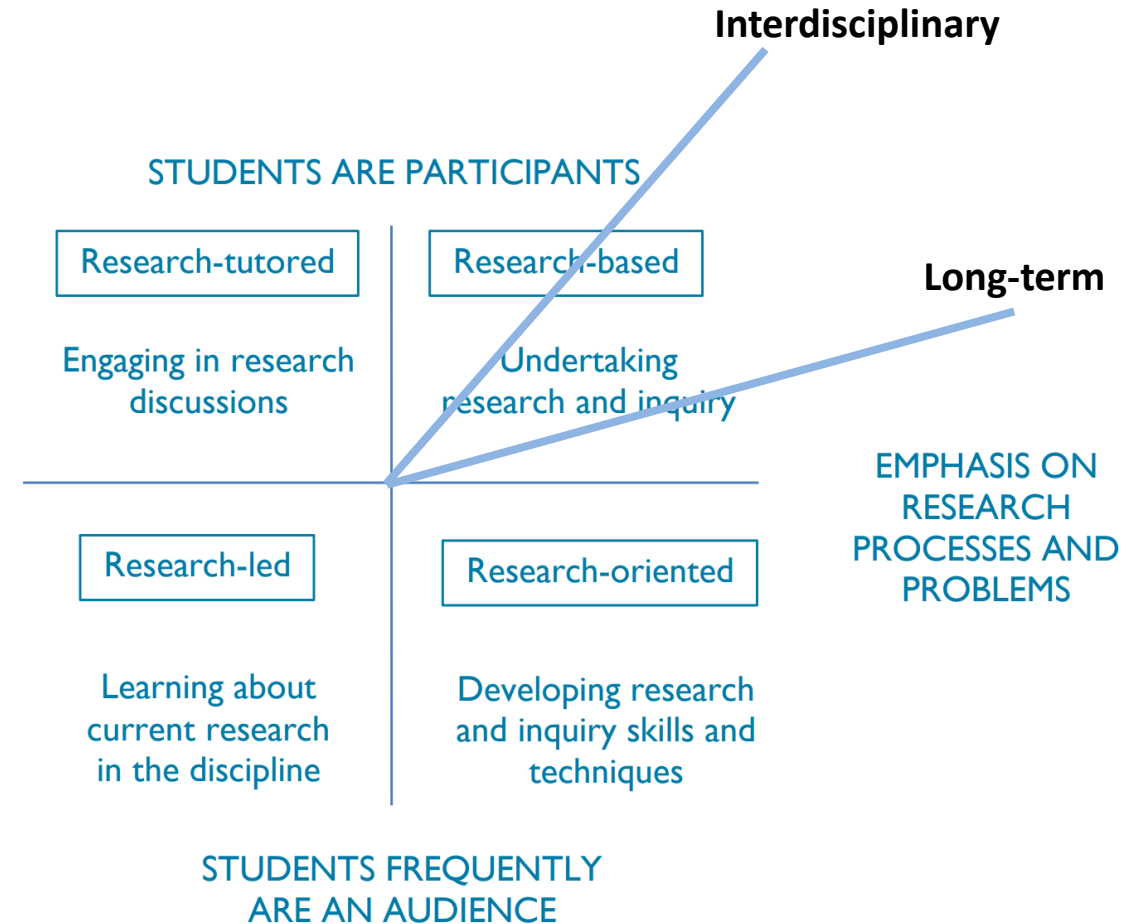
Collaborative working and learning between students of different year groups and research staff **on 'real' research projects with pathways to impact**

Research-Based Education (RBE)

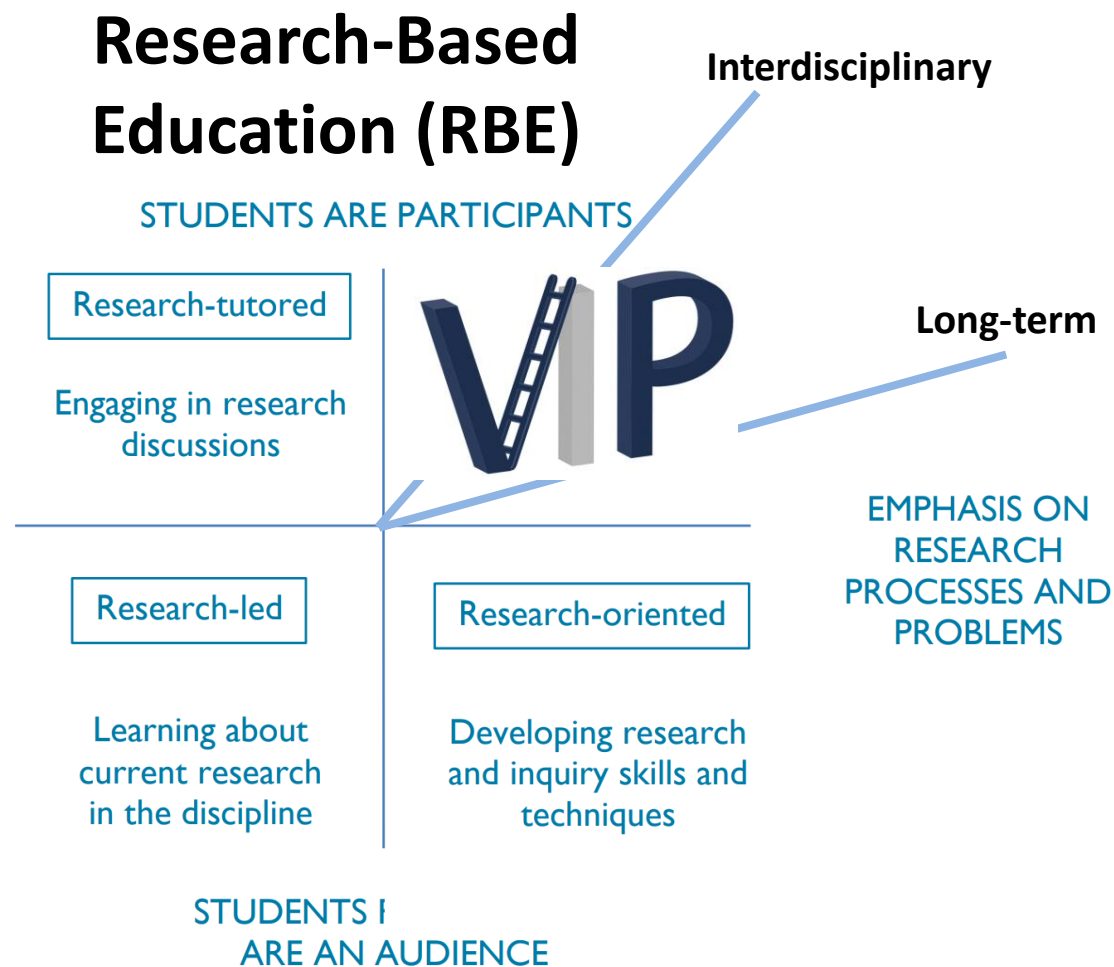
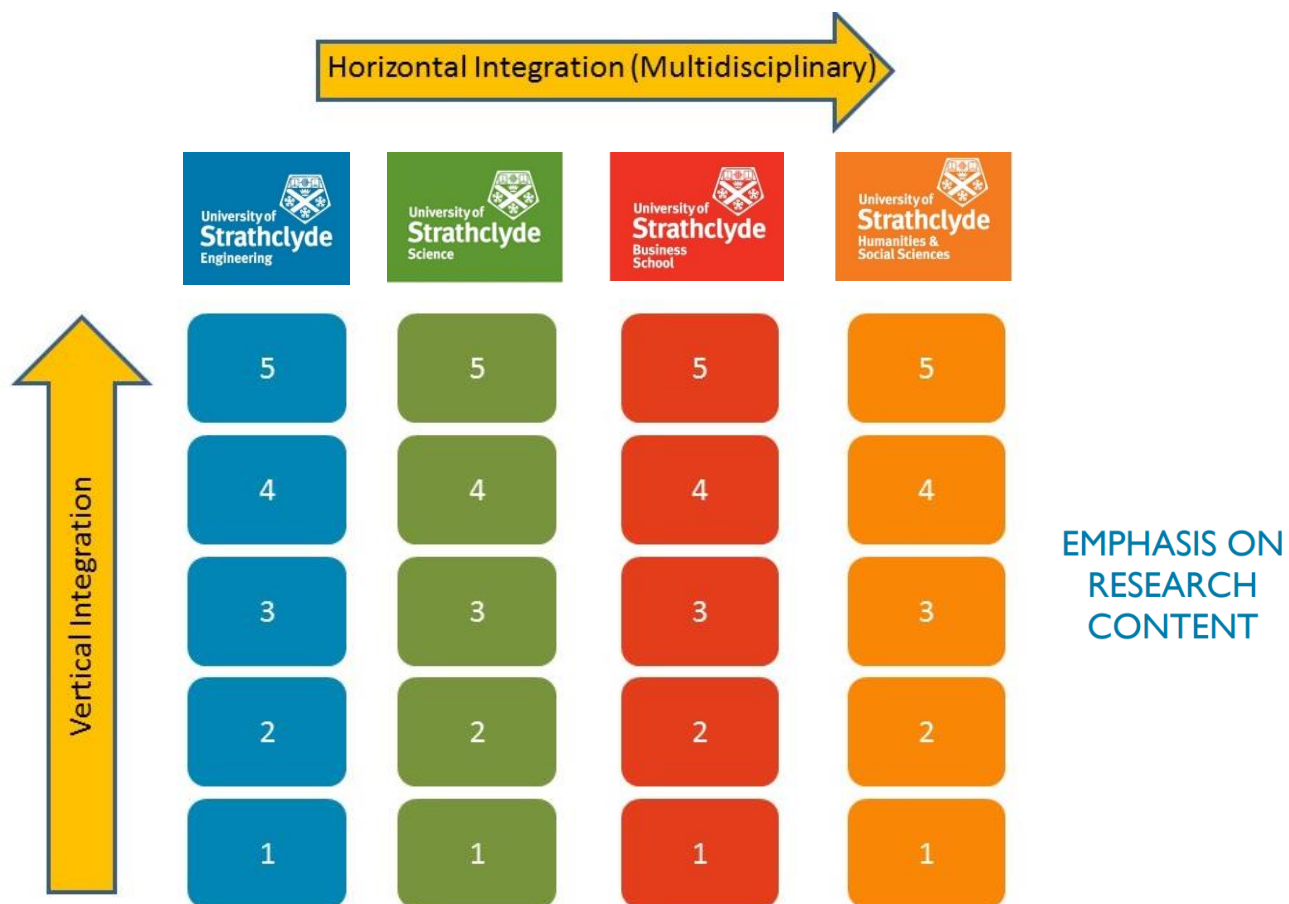
- added dimensions

University of Strathclyde Engineering	University of Strathclyde Science	University of Strathclyde Business School	University of Strathclyde Humanities & Social Sciences
5	5	5	5
4	4	4	4
3	3	3	3
2	2	2	2
1	1	1	1

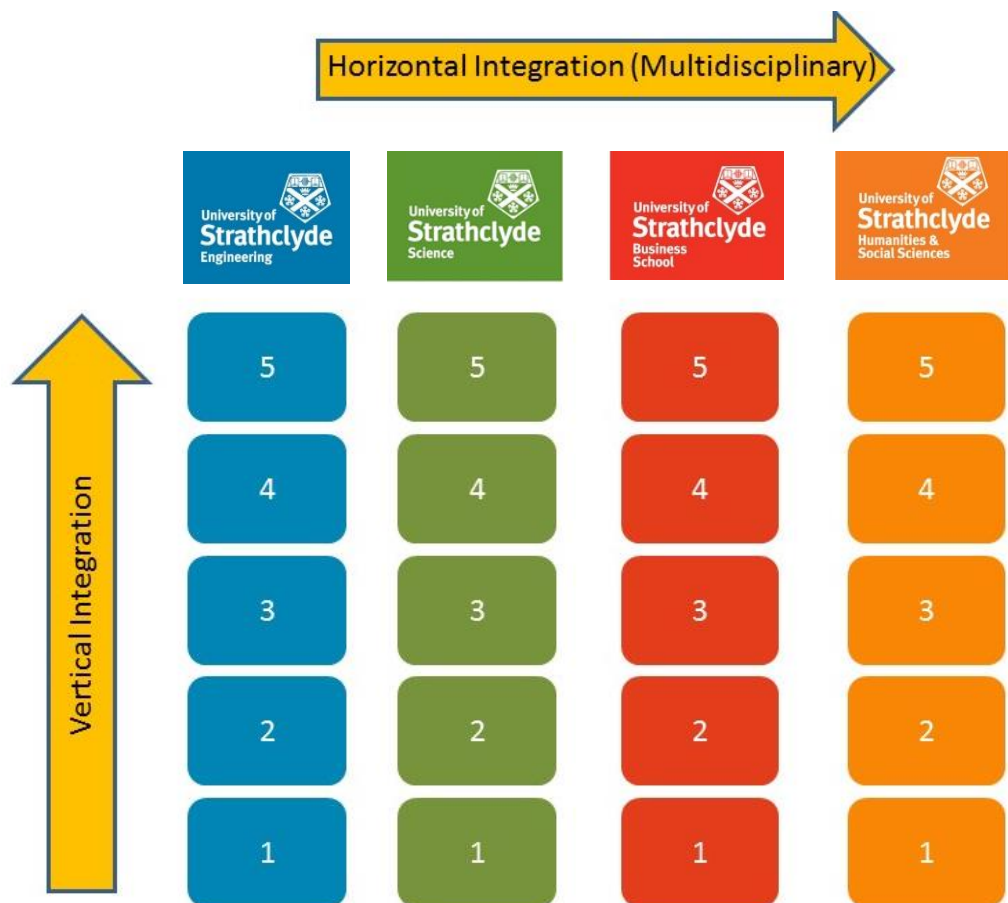
EMPHASIS ON
RESEARCH
CONTENT



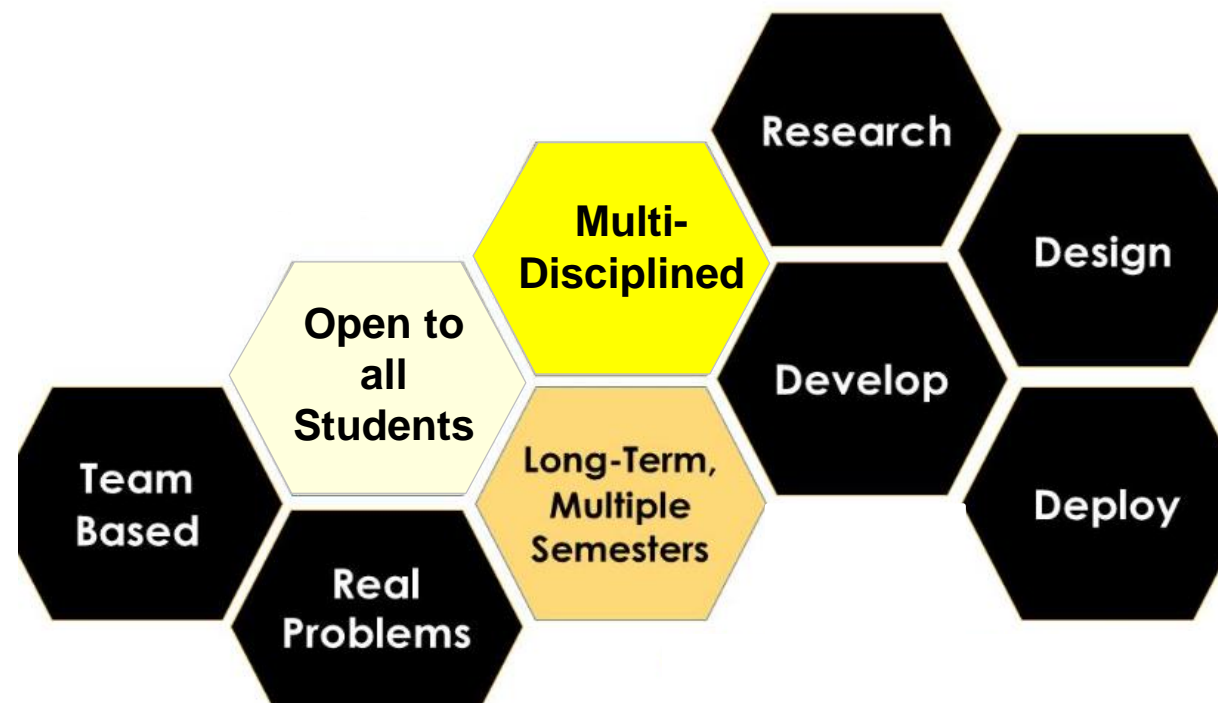
VIP Research-Based Education (RBE) Projects



VIP Vertically Integrated Projects



Research-Based Education (RBE)





for Sustainable Development

Horizontal Integration (Multidisciplinary)

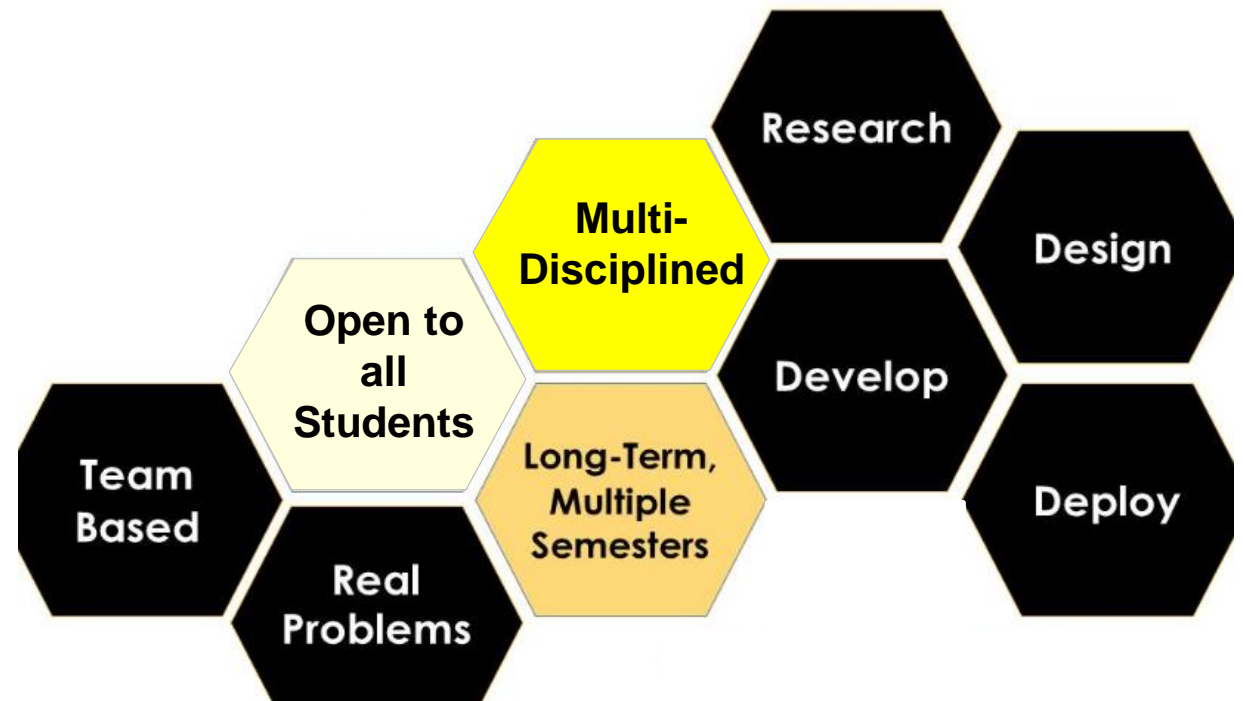


VIP4SD Intro/Platform

New 20 credit on-line subject-based SDG module

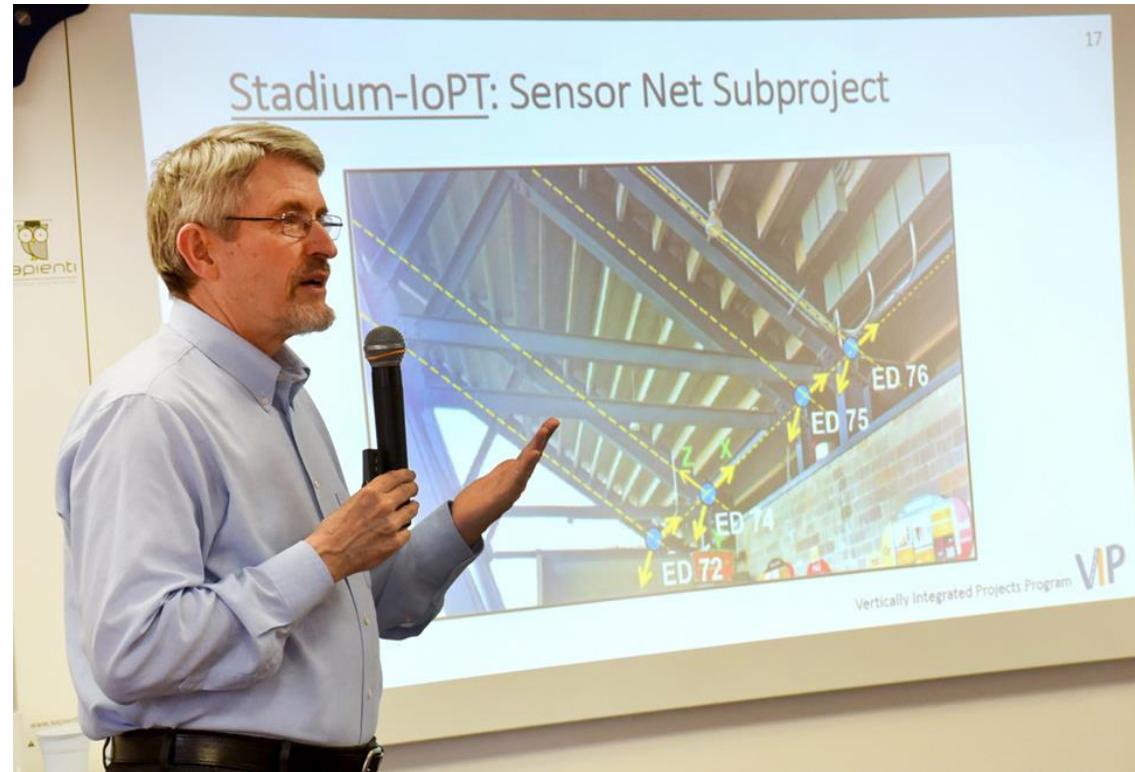


Research-Based Education (RBE)





1101 Students
80 VIP Projects



Prof Ed Coyle

The Consortium: 35 Members So Far....



United States (24)

- Arizona State University
- Boise State University
- Colorado State University
- Drexel University
- Florida International University ^{URM}
- **Georgia Tech** ^{AAU,1}
- Howard University ^{URM}
- Iowa State University ^{AAU}
- **Morehouse College** ^{URM,1}
- New York University ^{AAU}
- Notre Dame
- Polytechnic Univ of Puerto Rico ^{URM}
- Purdue University ^{AAU,1}
- Rice University ^{AAU}
- Stony Brook University ^{AAU}
- Texas A&M University ^{AAU,URM,1}
- UC Davis ^{AAU,URM}
- University of Delaware

• University of Georgia

- University of Hawaii ^{URM}
- University of Michigan ^{AAU,1}
- University of Washington ^{AAU}
- VA Commonwealth University
- Virginia Tech

International (11)

- Inha University (Korea)
- Malmö University (Sweden)
- Natn'l Dong Hwa University (Taiwan)
- Natn'l Ilan University (Taiwan)
- Riga Technical University (Latvia)
- Universidad del Norte (Colombia)
- Universidad ICESI (Colombia)
- Universidad Mayor (Chile)
- Univ. of New South Wales (Australia)
- University of Pretoria (South Africa)
- University of Strathclyde ¹ (Scotland)

Pending (5)

- **Georgia State University**
- NCA&T University ^{URM}
- Reykjavik University
- Tuskegee University ^{URM}
- UNICAMP
- Universidad de Chile

LEGEND:

^{AAU}: Member Institution (9)

^{URM}: Underrepresented
Minority Institution (7)

¹: Program in place prior to
Consortium establishment (5)

**Bold: State of Georgia
Institutions (3)**

2019 VIP Consortium Meeting in Atlanta





for Sustainable Development

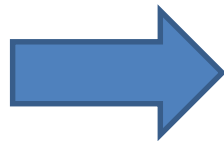
- **Research-Based** Education for Sustainable Development



provides the means
for embedding

RBESIDES in UG curricula

Means



End

Existing VIP4SD Teams – ~ 150 students



- Enterprise VIP
- ROVER
- STEM Education & Public Engagement
- Sustainable Energy for Development
- Drug Discovery
- TextLab
- Water and Sanitation Hygiene (WASH)

University of Strathclyde Glasgow

VIP Homepage
VIP Staff Information
Enterprise VIP
RObotic Vehicles for Education & Research (ROVER)
STEM Education & Public Engagement
Sustainable Energy For Development
Drug Discovery
TextLab
Water and Sanitation Hygiene (WASH)
Strathclyde Analytical Institute of Law

Search this site

Home Study with us Work with us Why Strathclyde

Vertically Integrated Projects (VIP)

Information for Students

Are you interested in applying what you've learnt in the classroom to original research and development projects? Would you like to be a part of a multi-disciplinary team working with undergraduate and postgraduate students from all years and staff from across the University? Do you want to learn new knowledge and skills that will make you stand out from the crowd? If so VIP@Strath would like to hear from you! University of Strathclyde is running a programme of classes called Vertically Integrated Projects – VIP@Strath. These projects give students from first year through to postgraduate level the opportunity to work with staff in multi-disciplinary teams on cutting-edge research and development projects.

By taking part in a VIP project you will be able to:

- Learn and practice many different professional skills.
- Make substantial technical contributions to a project.
- Experience many different roles on a large design team.
- Interact and receive support from more senior students and, in some instances, receive mentoring from PhD students involved in the project.
- Contribute to the completion of large-scale design projects that are of significant benefit to the research programmes of staff members.

If you would like to join the VIP Team please contact the relevant academic lead.

This year's projects include:

1 NO POVERTY Enterprise VIP	2 ZERO HUNGER Water and Sanitation	3 GOOD HEALTH AND WELL-BEING Drug Discovery
4 QUALITY EDUCATION TextLab STEM Education & Public	5 GENDER EQUALITY TextLab	6 CLEAN WATER AND SANITATION Water and Sanitation
7 AFFORDABLE AND CLEAN ENERGY Water and Sanitation Sustainable Energy For Development	8 DECENT WORK AND ECONOMIC GROWTH Enterprise VIP	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE ROVER
10 REDUCED INEQUALITIES	11 SUSTAINABLE CITIES AND COMMUNITIES	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION	14 LIFE BELOW WATER	15 LIFE ON LAND
16 PEACE, JUSTICE AND STRONG INSTITUTIONS	17 PARTNERSHIPS FOR THE GOALS	

Strathclyde Analytical

VIP Projects

VIP
@STRATH

[Enterprise VIP](#)
[ROVER](#)
[Drug Discovery](#)
[STEM Education & Public Engagement](#)
[Sustainable Energy for Development](#)
[Systems Biology Of Polarized Growth](#)
[TextLab](#)
[Water and Sanitation Hygiene \(WASH\)](#)

Sustainable Development Goals

Read about SDGs on the UN Sustainable Development Goals [website](#)

More about each goal

- [Goal 1: No Poverty](#)
- [Goal 2: Zero Hunger](#)
- [Goal 3: Good Health and Well-Being](#)
- [Goal 4: Quality Education](#)
- [Goal 5: Gender Equality](#)
- [Goal 6: Clean Water and Sanitation](#)
- [Goal 7: Affordable and Clean Energy](#)
- [Goal 8: Decent Work and Economic Growth](#)
- [Goal 9: Industry, Innovation and Infrastructure](#)
- [Goal 10: Reduced Inequalities](#)
- [Goal 11: Sustainable Cities and Communities](#)
- [Goal 12: Responsible Consumption and Production](#)
- [Goal 13: Climate Action](#)
- [Goal 14: Life Below Water](#)
- [Goal 15: Life on Land](#)
- [Goal 16: Peace, Justice and Strong Institutions](#)

SUSTAINABLE DEVELOPMENT GOAL 7

Ensure access to affordable, reliable, sustainable and modern energy for all



“Energy is the **golden thread** that connects economic growth, increased social equity, and an environment that allows the world to thrive.”

– Former UN Secretary-General Ban Ki-moon

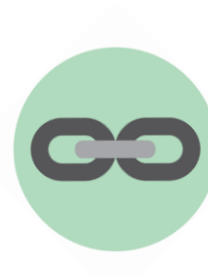




Sustainable Energy for Development (SE4D)



SE4D



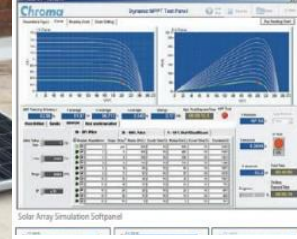
SUSTAINABLE DEVELOPMENT GOAL 7

Ensure access to affordable, reliable, sustainable and modern energy for all



Global problem in need of effective
and innovative engineering
solutions...





SE4D





The Gambia Project

Vertically Integrated Projects

While the Gambia Project has been responsible for 8 solar PV projects over the last decade, in 2012 the project started connecting students to work on real world problems through the Vertically Integrated Projects programme, or VIP.

VIP has linked several different academic disciplines together as a team: Electrical Engineering, Computer Science,

Design Manufacturing Engineering, and Business and Economics.

The VIP programme provides an opportunity for students to work over two academic years on a single project. By the second year they are mentoring the younger students and innovating technological solutions for places like the Gambia.



Bold, Ambitious, Innovative and Collaborative

HEADMASTER'S OFFICE

Notice / Notice / Notice

ENTRY

EME

DMEM

PhD

SBS

CES

SBS

PhD



Sustainable Energy for Development VIP

SE4D



Student Experience



Research



Impact





for Sustainable Development Conference 2018

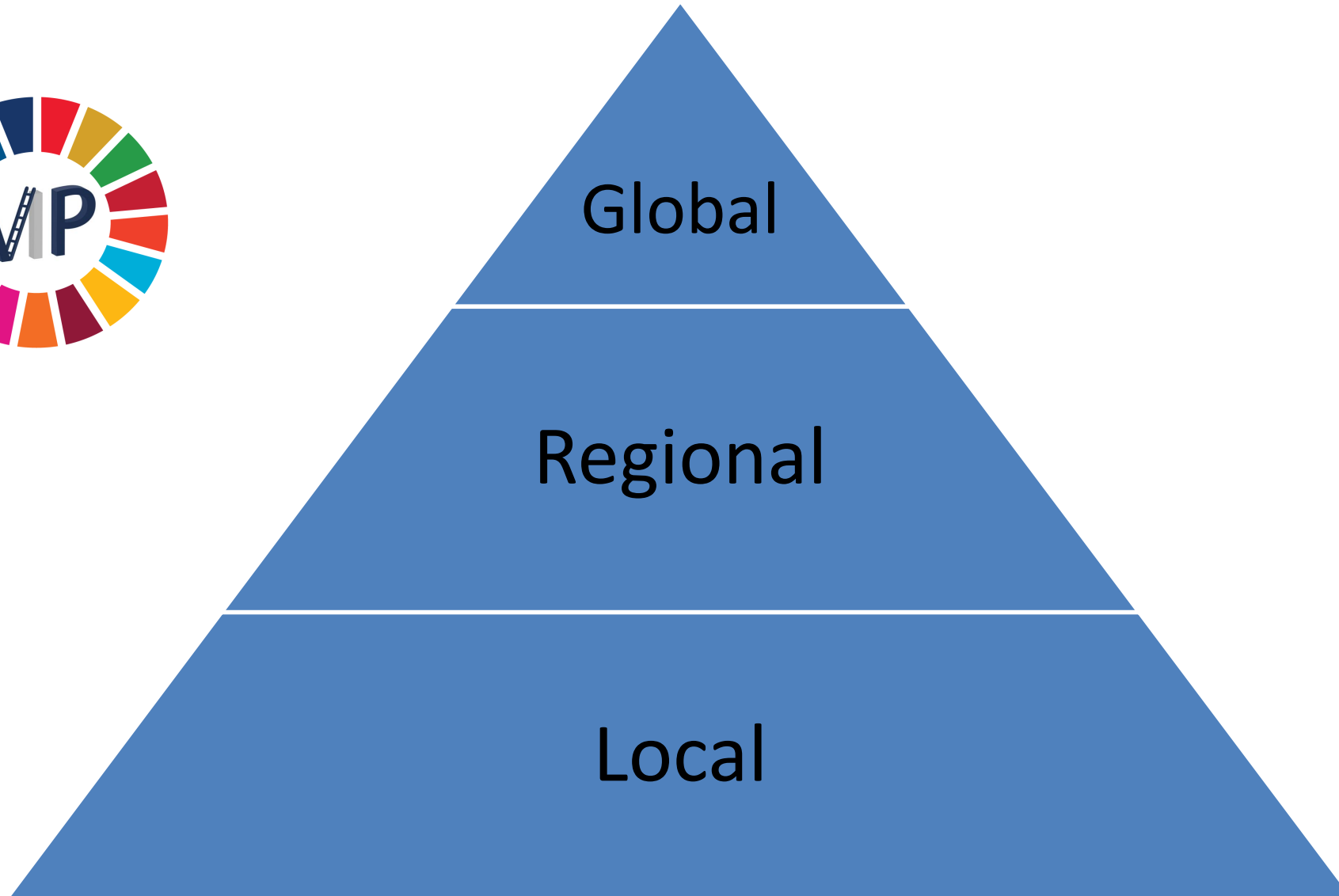




for Sustainable Development Conference 2019



2019/20 Student Conferences



Our Vision

Institutionalise & Internationalise





The Main Challenges

- Academic regulations,
- Changes required to existing curriculum,
- Assignment of academic credits,
- Degree accreditation requirements,
- Staff engagement and resource,
- Student recruitment,
- Assessment and supervision

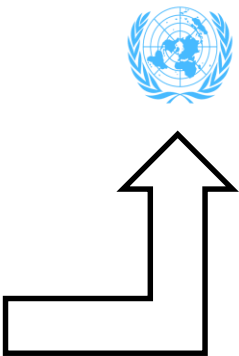
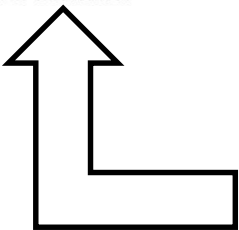
Our Vision

Institutionalise & Internationalise



Our Vision

Institutionalise & Internationalise



Our Vision

Institutionalise & Internationalise



REGIONAL CENTRE OF EXPERTISE
ON EDUCATION FOR
SUSTAINABLE DEVELOPMENT

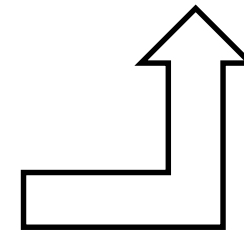
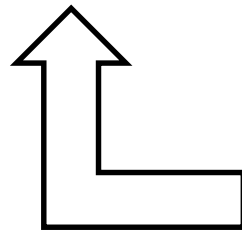
ACKNOWLEDGED BY



UNITED NATIONS
UNIVERSITY

Learning for
Sustainability
SCOTLAND

Ag Ionnsachadh airson
Seasmhachd ALBA



ESD



SDGacademy



- SDG Academy – SDSN initiative to create and curate free, graduate-level online courses on sustainable development
- including health, education, climate change, agriculture and food systems, sustainable investment

SDSN Sites



SDGacademy



SDSN



Sites ??



17 PARTNERSHIPS FOR THE GOALS



for

Sustainable Development



**SUSTAINABLE
DEVELOPMENT** **GOALS**

scott.strachan@strath.ac.uk

