EURYDICE
Collaborating towards a future in renewable energy

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CUT/ TUT/DUT

WP: 2.2 – GAP analysis

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RE	Restricted to a group specified by the Consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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Table of Contents

1. Individual goals (sub-task 2.2.1)

Each of the South African partners looked at their individual needs with respect to both industry liaison and teaching resources. A view of the circumstances and needs are the starting points of the gap analysis. The individual goals are listed below.

CUT

Based on the CUT individual status quo document (Vo.2), the following individual goals are proposed:

1. Contract and involve industry partners in a more efficient manner in order to enhance what was done previously.
2. Develop experienced educators with special consideration to gender aspects. Due to the recent development and introduction of renewable energy (RE) content in South African universities, the availability of experienced engineering professionals/educators is limited. Universities have to compete with industry for these individuals. This problem further intensifies when a female candidate is considered.
3. Based on current statistics, which indicate far fewer female practitioners in the RE field, a goal is to promote gender equality in engineering in general and the field of RE specifically, female students will be targeted in the promotional and subsequent admission processes.
4. Improve laboratory equipment that will engage and prepare students for the RE environment.
5. Engage in active collaboration between South African Universities of Technology (UoTs).

TUT

The following goals are proposed:

1. Build a solid relationship with industry stakeholders (opportunities to consult outside academia)
2. Improve lab facilities and equipment.
3. Provide relevant training for university staff members.
4. Work closely with other academic institutions in South Africa.

DUT

The key goals are listed below.

1. Create a basis for collaboration with industry stakeholders and Eurydice educational partners through a research and development hub. This can be used for joint project proposal; project development and supervision; and creating educational summaries and project portfolios. Ideally, project portfolios will be used to create prototype products.
2. Provide a wider access to the labs for Bachelors and Masters students. Open access to lab equipment and test beds will include safety, protection and risk moderation.
3. Widen the spectrum of (RE) technology testbeds for design and development.

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4. Arrange for short courses that provide advanced knowledge for academic staff and industry mentors and regulars courses that provide fundamental knowledge and skills to industry practitioners and students.
5. Improve the ability to test projects through the provision of take-home entry-level RE training & development kits for Bachelors students.

2. GAP identification (sub-task 2.2.2)

CUT

With reference to the CUT individual goals the following individual GAPs are identified:

1. The Legal procedures and liability considerations inhibit industry involvement. This needs to be addressed by the University through the Project.
2. RET is a relative new industry in SA. The specialized nature of professionals heightens scarcity of skilled persons/educators for appointment in HEI's.
3. Lack in institutional funding and a constant increase in student numbers burdens the current equipment and laboratories.
4. The qualification structure was recently re-shuffled by the South African ministry. This caused Universities to structure their new qualifications in an individual manner. Inter-University collaboration and student migration is as a result inhibited.

TUT

The following gaps have been identified:

1. Limited lab equipment and old technologies in the laboratories
2. Lack of funding is a huge factor, since lab upgrades are highly dependent on funds.
3. Limited communication with industry stakeholders.
4. Shortage of skilled professionals in RE.

DUT

In reaching the above-mentioned goals, the following gaps have been identified.

1. General lack of communication and collaboration with industry stakeholders and academics at other universities.
2. Insufficient logistical planning to make currently available lab equipment accessible for student projects and research design and development. Insufficient budget to provide a lab assistant.
3. RE lab equipment is essentially limited to PV technology. Need additional equipment to address battery technology, wind energy harvest and e-mobility testbeds.
4. General lack of communication and budget allocation for short courses for staff and student researchers.
5. Student project budgets (as part of module levies) are limited and difficult to access.

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3. Proposed measures (sub-task 2.2.3)

CUT

To address the CUT GAPs, the following individual measures are suggested:

1. Introduce industry partners to the proposed "Industry portal" and highlight the advantages on offer for them. Promote guest lecturing as a credit bearing activity for industry professionals.
2. Collaborate with international HEI partners. Training from and exposure to visiting lecturers are to be maximized during exchange visits.
3. Introduce virtual or remote laboratories which can be specialized and shared with other UoTs. This will alleviate the financial burden on the respective institutions.
4. Collaborate with South African UoT's to find/define common goals and hopefully achieve some level of standardization in terms of industry exposure for students.

TUT

To address the TUT GAPs, the following individual measures are suggested:

1. Designate contact points for industries as liaisons to ensure continuity in communications
2. A clear understanding at the onset of partners' roles and the rules of engagement
3. Collaborate with HEI at the national and international level.
4. Organize collaboration opportunities for students.
5. Look for ways to share facilities with industry partners and UoTs in SA.

DUT

In order to close the gaps listed, the following measures are suggested.

1. Create a design and development hub (initially around Bachelors, Honors and Masters project work) as a center point for industry and academic liaison. Include partners from industry and other academic institutions as mentors and assessors.
2. Allocate a budget for laboratory use planning and allocate lab supervision sessions to lab assistants.
3. Allocate capital for procurement of additional RE test bed equipment. This can be enhanced through mutual sharing of lab facilities with industry ad academic partners.
4. Use the design and development hub mentioned in item 1 above to share information about relevant short courses and learning programmes for staff and students. This may also serve as a networking platform to connect with industry and academic partners.

Include an allocation of budget for RE kits. This may be dawn centrally rather than per student. Available kits can be allocated to students at no cost.

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4. Minutes of the EURYDICE WP2.2 Closing Workshop, held on Wednesday 05 May 2021 at 15:00 - 15:30 via Teams

The meeting summary is recorded below.

Attendees:

- Johan Raath (CUT)
- Ntombi P Memane (TUT)
- Rathi Sewsunker (DUT)

Apologies:

- None

1. Opening & Welcome

Rathi opened the meeting.

2. Work Package 2.2 Gap Analysis

The following documents have been submitted for this WP:

- Individual goal document of each SA University
- Individual gap analysis document of each SA University
- Individual measures document of each SA University

3. Meeting summary

The attendees reviewed the gap analyses as documented for each SA University. It was noted that the documents as submitted by each SA University on the WP was sufficiently complete. The attendees agreed this WP is now closed. The review process has begun.

4. Review Process

The revised process of one review has been adopted and Ntombi P Memane (TUT) agreed to complete the review of the WP2.2 document.

5. Summary of the Gaps

This was accepted as proposed by each SA University and listed again as a summary.

CUT

To address the CUT GAPs, the following individual measures are suggested:

1. Introduce industry partners to the proposed "Industry portal" and highlight the advantages on offer for them. Promote guest lecturing as a credit bearing activity for industry professionals.
2. Collaborate with international HEI partners. Training from and exposure to visiting lecturers are to be maximized during exchange visits.
3. Introduce virtual or remote laboratories which can be specialized and shared with other UoTs. This will alleviate the financial burden on the respective institutions.
4. Collaborate with South African UoT's to find/define common goals and hopefully achieve some level of standardization in terms of industry exposure for students.

TUT

To address the TUT GAPs, the following individual measures are suggested:

1. Designate contact points for industries as liaisons to ensure continuity in communications
2. A clear understanding at the onset of partners' roles and the rules of engagement
3. Collaborate with HEI at the national and international level.
4. Organize collaboration opportunities for students.
5. Look for ways to share facilities with industry partners and UoTs in SA.

DUT

In order to close the gaps listed, the following measures are suggested.

1. Create a design and development hub (initially around Bachelors, Honors and Masters project work) as a center point for industry and academic liaison. Include partners from industry and other academic institutions as mentors and assessors.
2. Allocate a budget for laboratory use planning and allocate lab supervision sessions to lab assistants.
3. Allocate capital for procurement of additional RE test bed equipment. This can be enhanced through mutual sharing of lab facilities with industry ad academic partners.

4. Use the design and development hub mentioned in item 1 above to share information about relevant short courses and learning programmes for staff and students. This may also serve as a networking platform to connect with industry and academic partners.
5. Include an allocation of budget for RE kits. This may be dawn centrally rather than per student. Available kits can be allocated to students at no cost.

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