NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT
POTCHEFSTROOM CAMPUS

Faculty of Engineering

ETHICS OFFICE		Terms of References	
Title	Standard operating procedure for the research ethics committee of the Faculty of Engineering (ENGREC)		
Date approved	2025-02-24	**Revision date**	2024-12-03

1 COMPILATION AND AUTHORISATION

Action	Designated person	Signature	Date
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2 ABBREVIATIONS AND/OR DEFINITIONS

Abbreviation/definition	Description
REC	Research Ethics Committee
EngREC	Research Ethics Committee Faculty of Engineering
NWU	North-West University
RDGC	Research Data Gate Keeping committee of the NWU
SOP	Standard Operating Procedure
Secondary data use	The use of NWU data (staff, students, or systems/departments/laboratories) originally gathered for other purposes than research, to be used for research purposes.
SoTL research	Research related to the Scholarship of Teaching and Learning.
NWU Data	Existing NWU data (staff, students, or systems/departments/laboratories) collected for purposes other than research.
External researchers	Researchers from outside institutions wanting to conduct research using NWU data for secondary data use or staff, students, or systems\ departments\laboratories for primary research.

3 Purpose of this Standard Operating Procedure (SOP)

This document specifies how applications for ethics clearance to EngREC will be processed

4 Scope of EngREC's authority

Ethics approval must be obtained for all research proposals (whether students are involved or not) before a research study commences.

Note: The ENGREC will not consider research studies for approval if it is apparent that the research has already been conducted (retrospective).

At the NWU the nature of the participants involved in a research study (whether children, students, adults, animals or no living participants) is the prime determinator of the *initial ethics risk level* of the study. EngREC only has the authority to grant ethics approval for "no risk" and "low risk" studies. Any studies with a *higher initial ethics risk level* falls outside our ambit and are refered to the appropriate registered REC. See Appendix A for the screening form that is used to determine the initial ethics risk level of a study.

4 Research data gate keeping at EngREC

A special category of research entails research based on data emanating from the NWU. Examples of such data include:

1. student assessessment results
2. lecturer data
3. supporting personnel data.

Such research studies can also be reviewed by EngREC, with the exception of student assessment results since students are per definition a vulnerable group and as can be

seen in our screening form and application flow chart, such studies are immediately refered to EMELTEN-REC.

Studies on data similar to categories 2 and 3 above can however be reviewed by EngREC (even if the applicants are researchers from another institution than the NWU). Such applications have to follow the same procedure (as outlined in the flow chart) than normal studies.

Note however that the following categories of NWU data are out of bounds for any study and will not be given access to even by the RDGC

- Direct access to e-mails.
- Any personal information of students, academics and/or support staff.
- Staff performance agreements, employee assistance program (EAP) or other private People and Culture processes.
- Any detail on student, academic or support staff disciplinary processes.
- Any detail on undergraduate students, postgraduate students, or academic's teaching-learning or research integrity processes.
- Any detail on research ethics approval processes.
- Any detail regarding promotional processes.

5 Procedure

EngREC adheres to international ethics norms on ethical conduct in research. We also determine and manage ethics risk in a manner that conforms to general industry practice. Simply put, we (as well as everybody else in industry) view risk as the combination of two factors, namely:

- the severity of the potential impact of something going wrong; and
- the likelihood of the occurrence of something going wrong in the study.

Similar to industry, the total risk of a research study consists of a number of risks of components of the study. In order to be consistent towards all prospective studies we determine each risk in a study as the product between severity and likelihood. To make life easier for our applicants we give guidance in the typical risks of a "low risk" study in the form of a template (see Appendix B). This template is available in MS Word and LaTeX formats and is alligned with the reviewer form (which is an Excel spreadsheet). The reviewer form is available on EngREC's website.

The above mentioned template is a set of tables that outline the initial risk of the study and how it is managed as well as how the data generated by the study will be managed. In order to be as efficient as possible during the review process of a prospective study, the above mentioned table has to be included in the study's research proposal document. There is no additional application form required thereby reducing the documentation that has to be generated and reviewed to the following:

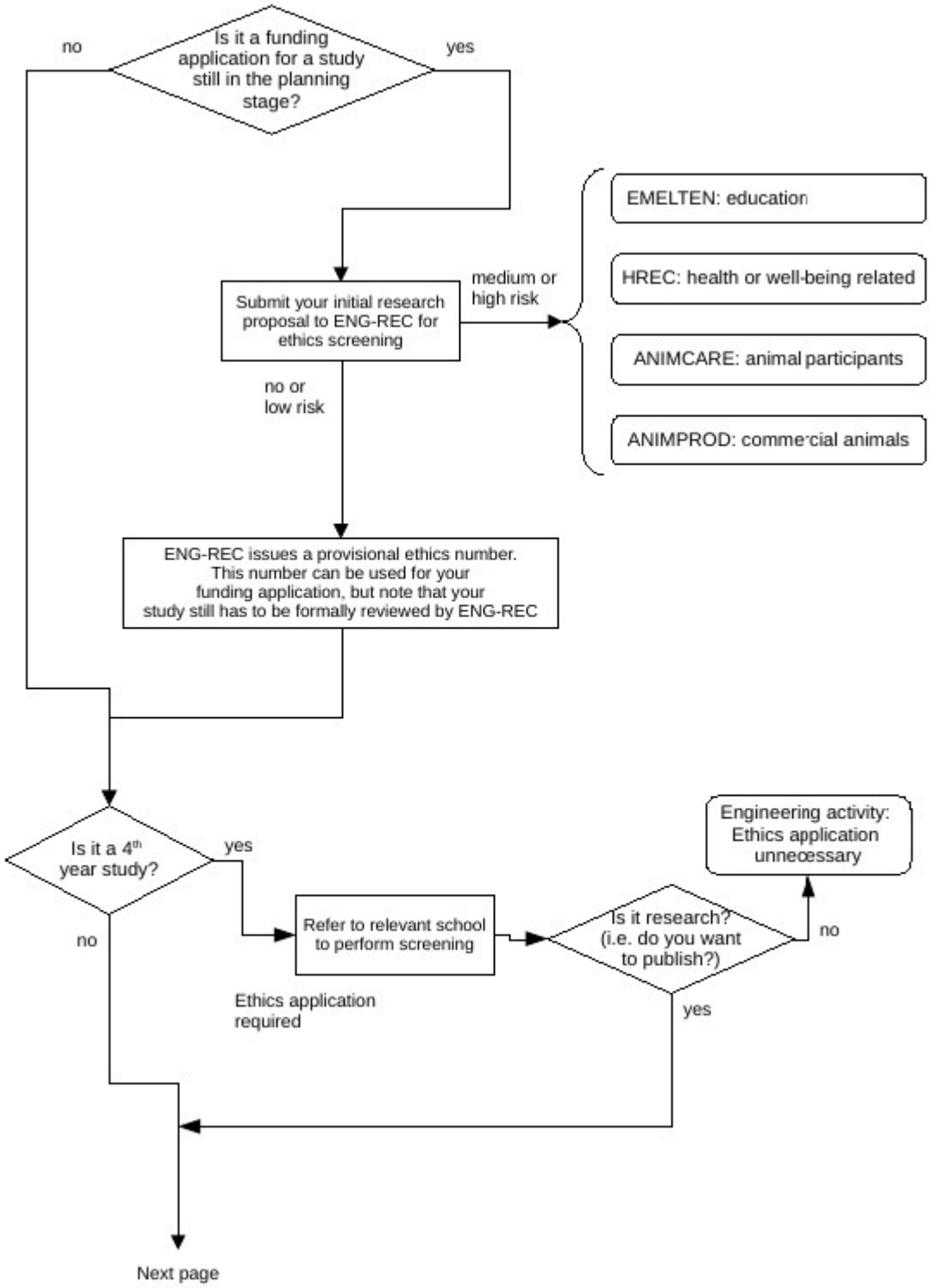
- the research proposal that has been amended with our prescribed ethics

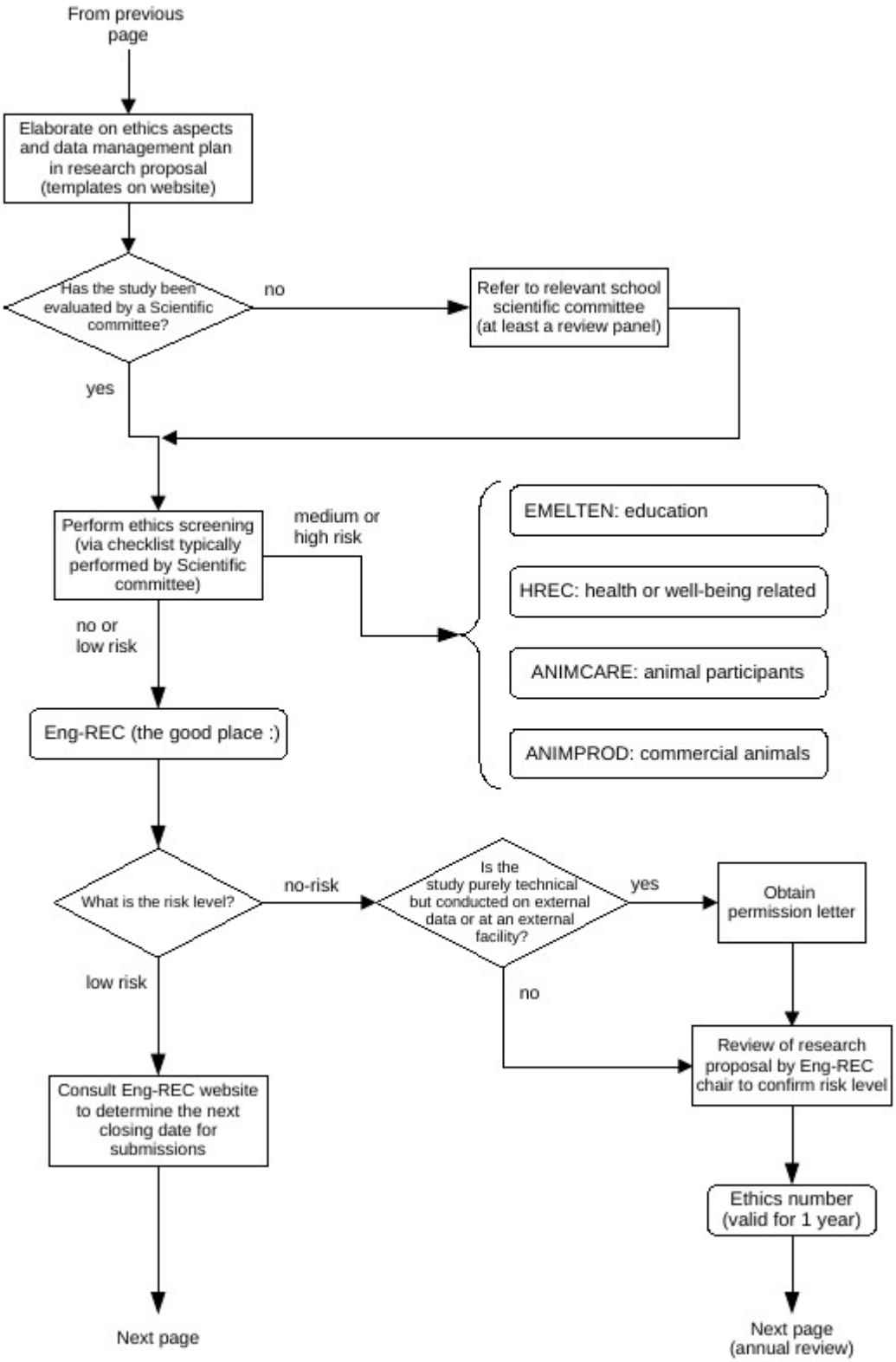
template; and

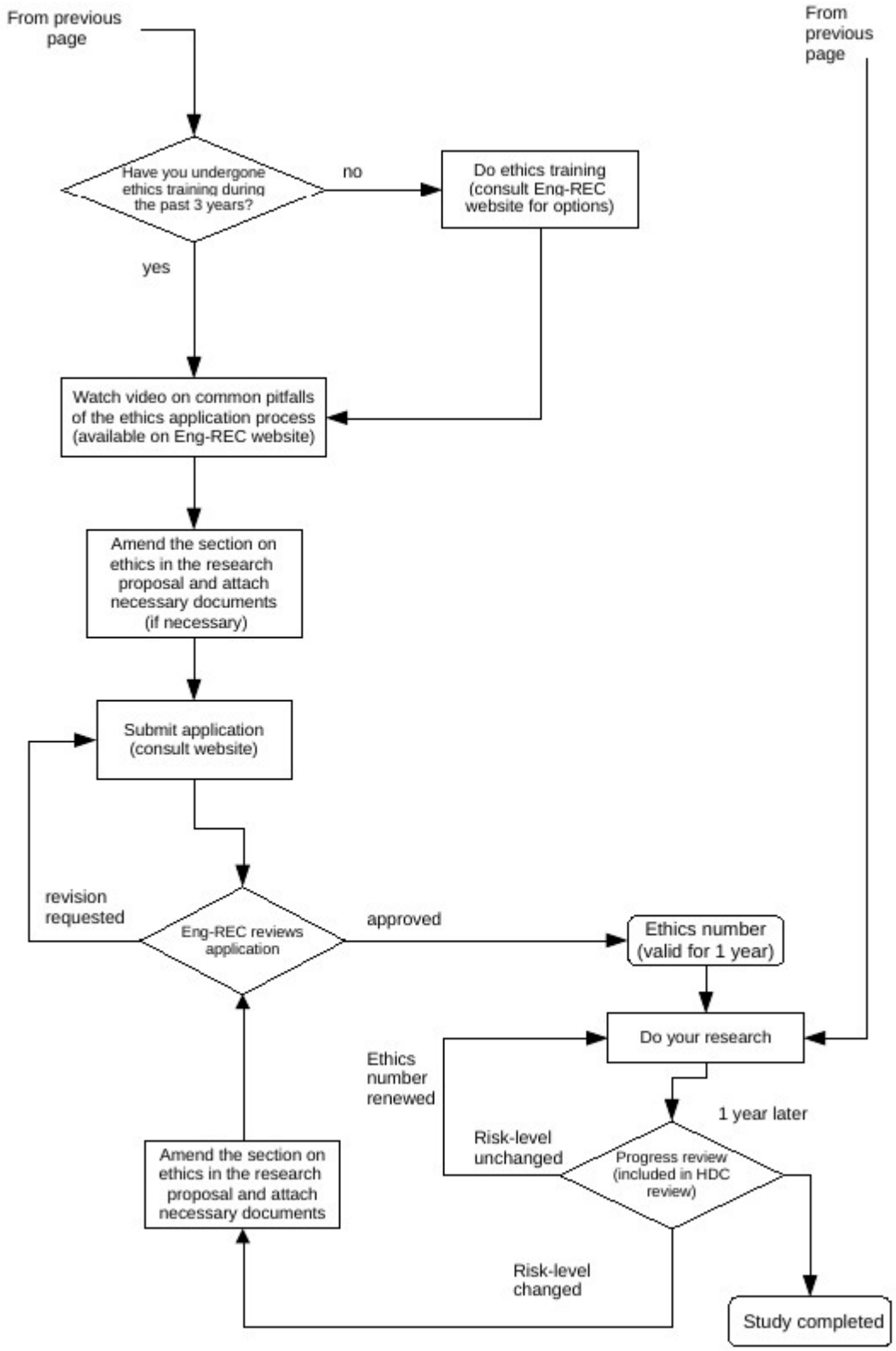
- supporting documents (e.g. ethics training certificates etc.)

Note however that the amended research proposal has to be signed off by all researchers and/or students involved in the study thereby making it legally binding.

Detail aspects of the application procedure are outlined in the following set of flow charts.


Is it a funding application for a study still in the planning stage?
no
yes
Submit your initial research proposal to ENG-REC for ethics screening
medium or high risk
no or low risk
EMELTEN: education
HREC: health or well-being related
ANIMCARE: animal participants
ANIMPROD: commercial animals
ENG-REC issues a provisional ethics number. This number can be used for your funding application, but note that your study still has to be formally reviewed by ENG-REC
Is it a 4th year study?
yes
no
Refer to relevant school to perform screening
Ethics application required
Is it research? (i.e. do you want to publish?)
no
yes
Engineering activity: Ethics application unnecessary
Next page


From previous page
Elaborate on ethics aspects and data management plan in research proposal (templates on website)
Has the study been evaluated by a Scientific committee?
no
Refer to relevant school scientific committee (at least a review panel)
yes
Perform ethics screening (via checklist typically performed by Scientific committee)
medium or high risk
EMELTEN: education
HREC: health or well-being related
ANIMCARE: animal participants
ANIMPROD: commercial animals
no or low risk
Eng-REC (the good place :)
What is the risk level?
no-risk
Is the study purely technical but conducted on external data or at an external facility?
yes
Obtain permission letter
low risk
no
Review of research proposal by Eng-REC chair to confirm risk level
Consult Eng-REC website to determine the next closing date for submissions
Ethics number (valid for 1 year)
Next page
Next page (annual review)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Have you undergone ethics training during the past 3 years?
no
Do ethics training (consult Eng-REC website for options)
yes
Watch video on common pitfalls of the ethics application process (available on Eng-REC website)
Amend the section on ethics in the research proposal and attach necessary documents (if necessary)
Submit application (consult website)
revision requested
Eng-REC reviews application
approved
Ethics number (valid for 1 year)
Do your research
Ethics number renewed
1 year later
Risk-level unchanged
Progress review (included in HDC review)
Amend the section on ethics in the research proposal and attach necessary documents
Risk-level changed
Study completed

Appendix A: screening form to determine initial ethics risk level

4. Ethics screening checklist				
		Yes	No	Notes
1	Is the context of the research health or health-related?	●		If yes, refer to NWU-HREC
2	Does the research involve animals for the purpose of human health, animal health or environmental health?	●		If yes, refer to NWU-AnimCare-REC
3	Does the research involve animals for the purpose of improving animal breeding or improving animal nutrition or genetics?	●		If yes, refer to NWU-AnimProd-REC
4	Is the research education related (Primary, secondary or tertiary level education)	●		Education related research refers to any research conducted by disciplines other than education disciplines about topics or participants within the field of education or investigating or striving to improve the psycho-social wellbeing of human participants. If yes, refer to NWU-EMELTEN-REC

5	Are there any risks associated with the research activities that can potentially harm the environment?	●		•If yes and study is conducted in a laboratory, refer to the Faculty's HIRA (Hazard Identification and Risk Assessment) process. •If yes and study is not conducted in a laboratory, refer to ENG-REC
6	Does the study involve minor participants even if only observing them? (Minors: < 18yrs)	●		If yes, refer to NWU-EMELTEN-REC
7	Does the study involve minor participants even if only observing them? (Minors: < 18yrs)	●		If yes, refer to the Faculty's HIRA (Hazard Identification and Risk Assessment) process. If yes, explain in the research proposal, how this risk will be mitigated
8	Will the study be conducted on private property outside of the NWU?	●		If yes, attached Letter of Permission
9	Will company (included NWU) data be used for the study?	●		If yes, attached Letter of Permission
10	Does the study use previously collected data of human participants?	●		
11	Does the study involve the development of a new skill in human techniques or preparation of a human model?	●		
12	Does the journal to which the publication is to be sent, require an ethics approval number?	●		
13	Does the study pose a risk to the name of the NWU?	●		
14	Are there any conflicts of interest e.g. a researcher's individual interests or responsibilities have the potential to influence the carrying out of his or her role or professional obligations during the research?	●		
15	Does the research investigate illegal activities e.g. involving participants who are illegal immigrants or engaged in illegal activities, studying the practice of religious leaders that demand members to drink dangerous substances or conduct dangerous actions?	●		
16	Will the researcher (or research team) be placed at a real risk of harm (e.g. breaking the law by carrying out certain activities like research investigating gang activities and the possession of illegal firearms)?	●		
17	Does the research involve adult human participants at any stage of the research? (Adults: > 18yrs) If no, ignore questions (a) – (r)	●		Research with human participants can never have a "no risk level" and will always require ethics approval from a REC for research studies of both academics and students
a)	Will the research be done by means of interviews	●		If yes, attach list of interview questions
b)	Will the research be done by means of focus groups	●		If yes, attach list of questions/discussion points
c)	Will the research be done by means of a questionnaire	●		If yes, attach questionnaire
d)	Does the research involve vulnerable1 human participants and the context of the research is health related?	●		If yes, refer to NWU-HREC
e)	Does the research involve vulnerable1 human participants and the context of the research is non-health related?	●		If yes, refer to NWU-EMELTEN-REC

f)	Does the study involve vulnerable human participants where there is a diminished ability to fully safeguard their own interests in the context of the research to be conducted e.g. staff members, students, patients, aged, prisoners, mentally disabled people, participants from low socioeconomic groups, people in dependant/power relationships, ethnic and religious minorities?	●		
g)	Does the study involve participants in interviews/focus groups with sensitive questions e.g. related to personal information, personal socio-economic information, sexual preference or activity, drug use, crime, violence etc.?	●		
h)	Is the research topic considered as sensitive e.g. personal in nature like finances, sexuality, illness or confidential topics etc.?		●	
i)	Is there the possibility of a loss of privacy and/or confidentiality e.g. collect information with personal identifiers (names, student numbers, etc.)?		●	
j)	Does the study involve a psychological, physical, educational or socio-economic intervention?		●	
k)	Will the study involve potentially harmful activities e.g. sharing confidential information, biological sample collection, involved in focus groups on sensitive topics, severe physical exercises etc.?		●	
l)	Will the participants be misled/deceived in any way?		●	
m)	Will any personal data of a human participant be used?		●	
n)	Could the study induce more than negligible stress or emotional reactions (e.g. trauma, embarrassment, stigma, devaluation of values and beliefs) beyond those encountered in everyday life?		●	
o)	Could the wider community be linked to the research and suffer harm e.g. community stigma, stigmatisation due to religious choices?		●	
p)	Is there the possibility that the research may cause varying degrees of harm to any participant (e.g. physical, psychological, educational, social, legal, socio-economic, dignitary or community)?		●	
q)	Are there no precautionary measures available for some of the identified risks of harm?		●	
r)	Does the study have the possibility of adverse or serious adverse events (e.g. undesirable or unintended responses or occurrences from a research participant during research that is related or not related to the research), occurring during the research study?		●	

8. Recommendation of ethics risk level by Scientific Committee

(Risk can be seen as "the probability of harm occurring as a result of participation in research" or "an unexpected negative consequence of unethical actions".)

No risk: There is no possible risk that the research may lead to any undesirable effects or unexpected negative consequences as no participants are directly involved.	●
Minimal, low or negligible risk: The probability, magnitude or seriousness of unexpected negative consequences, harm or discomfort anticipated in the research is negligible and no greater than that of ordinary encounter in daily life ("Daily life" as a benchmark should be that of daily experiences by the average person living in a stable society). Research in which the only foreseeable risk is one of minimal unexpected negative consequences, discomfort or inconvenience.	
Medium Risk: Research in which there is a potential risk of unexpected negative consequences, harm or discomfort, but where appropriate steps can be taken to mitigate or reduce overall risk. Remedial interventions can be undertaken should harm occur.	
High Risk: Research in which there is a real and foreseeable risk of unexpected negative consequences, harm and discomfort, and which may lead to serious adverse consequences if not managed in a responsible manner.	

Appendix B: ethics template to be added to research proposals

A number of ethics risks have been identified that are applicable to this study to a greater or lesser degree. These risks are described in table 3.3. The first column of this table describes each risk in detail. The second column gives a subjective evaluation of the likelihood of the occurrence of the particular risk. This evaluation is motivated in the third column. The fourth column similarly gives a subjective assessment of the impact severity of the risk, which is once again motivated in the fifth column. The last column of the table reflects the final calculated risk level of each risk. The fifth column is literally the product between the scores in columns two and four. This final risk value can be related to a qualitative description as can be seen in table 3.2

Note the following:

a) Likelihood is the probability that a particular risk will occur.
b) Impact severity is the effect of the risk in the event that it materializes.
c) The impact severity of a particular risk is influenced greatly by the specific details of the planned study. Often the impact of an ethics risk can be mitigated significantly by merely defining the scope of the study appropriately.
d) Similarly the likelihood of occurrence of an identified risk can be mitigated by including certain mitigating actions. As an example, the likelihood of methodological shortcomings (the first risk identified in table 3.3) is quite probable if there has been a lack of oversight and peer review input to the study. This likelihood however becomes unlikely by subjecting a proposed study to critical input from peers at a scientific committee meeting.

The scores used in table 3.3 are defined in table 3.1 and table 3.2. These score values don't have to be the same for a particular risk. For example, a study that entails laboratory work only will have a low impact score for risk 1 (except perhaps reputational damage to the research team), but might have a high likelihood score if the study hasn't been approved at a SciComm.

Table 3.1: Likelihood and impact severity score descriptions

Score	**Likelihood**	**Impact (on participants)**	**Impact (on researcher or company or NWU)**
1	Very unlikely	Negligible (minor inconvenience)	Negligible (no reputational damage)
2	Unlikely, but possible	Marginal (minor injury)	Marginal (minor potential reputational or economic damage that can be counteracted without actually incurring the damage)
3	Occasional	Moderate (consequences will take time to recover from)	Moderate (some actual reputational or economic damage that will take a small

			amount of time to recover from)
4	Probable	Critical (severe injury – may cause long-term damage)	Critical (major reputational or economic damage that requires immediate corrective action)
5	Frequent	Catastrophic (death)	Catastrophic (severe economic repurcussions requiring immediate cessation of the activity)

Table 3.2: Risk level descriptions

Level	**Description**
1-6	Low
7-12	Medium
13-25	High

Table 3.3: Management of ethics risks associated with this study

Risk description	**Likeli-hood**	**Likelihood score motivation**	**Impact seve-rity**	**Impact score motivation**	**Risk level**
1. Methodological shortcomings in the study resulting in unnecessary inconvenience or suffering from the participants, since no conclusive answers can be obtained from the planned study.					
2. Bias built in the research due to conflict of interest that isn't clearly stated and managed.					
3. The direct and intended purpose of the study can result in some sort of harm to people in general.					

Risk description	Likeli-hood	Likelihood score motivation	Impact seve-rity	Impact score motivation	Risk level
4. Unethical conduct due to inexperience or lack of knowledge on the part of the research team.					
5. Irrelevant or worthless study resulting in unnecessary inconvenience or even suffering from the participants, since the foreseeable results of the study don't have any direct benefit for anybody.					
6. Inappropriate selection of the study sample and/or sample size resulting in either unfair exclusion of opportunities or unfair distribution of the burden of negative consequences of the study.					
7. Participants don't have the option to make a free and informed decision on whether to participate.					
8. Participants don't have the freedom to leave the study at any time and have all of their data removed from the study.					
9. Participants can suffer negative consequences due to their personal information leaking out to the broader society.					
10. Participants suffering physical, psychological or financial harm stemming from their participation in the study.					
11. Participants not treated with respect.					

Risk description	Likeli-hood	Likelihood score motivation	Impact seve-rity	Impact score motivation	Risk level
12. The community of the participants not treated with respect: e.g. by not asking permission to interact with the community or conduct research on the facilities of the external partner.					
13. Execution of the research differs from the planned protocol presented in the application.					
14. The data required for training machine learning (artificial intelligence) components in the study hasn't been obtained ethically.					
15. Data management inappropriate resulting in data being lost (which implies that the participants were inconvenienced in vain).					
16. Publically funded research data is not available for future research purposes					

In summary, the above table shows that all foreseeable ethical risks have been mitigated to an acceptable level. The occurrence of adverse events is therefore unlikely which means that the study's effective ethical risk level is low.

4. Data management plan

The management plan for the data that will be collected / generated during the course of the study is described in table 4.1

Table 4.1 Management of data during the course of the study

Item	Description
Minimum data required for reproducibility	
Storage location	

Item	Description
Backup storage location	
Persons with access	
Access control	

The study has been concluded once the main findings have been published. At that stage a portion of the data descibed in table 4.1 might be eligible for dissemination to the wider scientific community. This is described in table 4.2

Table 4.2 Management of data once the study has been concluded

Item	Description
Will the data described in table 4.1 be made available to the broader scientific community? If not, motivate.	
Which meta-data will be included to ensure that the data is indeed useful for later research?	
Any ethics considerations when preparing data for long-term storage	
Which data listed in table 4.1 will not be transferred to long-term storage? Motivate.	
Person responsible for transfering data to faculty storage	
When will the data be transferred to the care of the above person?	
At which stages will the persons listed in table 4.1 loose access to the data?	