TERMS OF REFERENCE FOR ECSA ICT UNIVERSITY HACKATHON

1. BACKGROUND

The Engineering Council of South Africa (ECSA) is a statutory body established in terms of the Engineering Profession Act, 2000 (Act No. 46 of 2000).

ECSA's core mandate functions are:

a) the accreditation of engineering education programmes offered by universities and other higher education institutions

b) registration of persons as professionals, candidates, and specified categories in the engineering profession

c) ensuring that registered persons undergo continuing professional development (CPD) to keep up with developments within their profession

d) the regulation of how registered persons conduct their work – which can result in a charge of improper conduct following a complaint against a registered person.

To service its stakeholders, it is critical that ECSA is accessible to all its stakeholders.

ECSA wants to ensure that it has all the required and feasible digital platforms that enable anywhere and anytime access to its services by stakeholders.

ECSA currently uses Microsoft Dynamics 365 as a core ICT platform for Registration, CPD, Education, and Finance business internal processes. The platform has an external Portal for applicants/registration and CPD functions. The platform is not serving all the needs of stakeholders. ECSA has sent a request for proposals to renovate the platform and related systems, and the process is still in progress.

It is for this reason that ECSA will be hosting its first ICT University Hackathon.

2. PROBLEM STATEMENT AND HACKATHON THEME

The ECSA ICT University Hackathon is the first of planned hackathons where participants are expected to create solutions addressing an assigned theme.

The outcome of this hackathon is to ensure that the ECSA has a newly built website that aligns with its corporate identity. Also, ECSA wants to have a Knowledge Management (KM) system in place that can make use of the Microsoft SharePoint libraries. The KM system is a critical element in ensuring that ECSA survives and prospers in a highly competitive and rapidly changing environment. Without effectively documenting, sharing, and retaining the knowledge within ECSA, it is nearly impossible to create a positive and productive culture and deliver a top-quality experience for stakeholders. As a result, the KM system will be primarily used to perform the following activities:

- Store and share files (internal documents, images, and videos related to organisational activities)
- Share organisational updates.
- Share relevant published material.
- Connect employees.
- Collaborate with external stakeholders.
- Increase productivity by accessing organisational knowledge (stored by different divisions) in one integrated system.

The theme of this hackathon is "***Enhancing and developing cutting edge ECSA's website and Knowledge Management***".

3. TARGETED PARTICIPANTS

ECSA will target final-year or post-graduate South African university students. The students will be required to participate in a team consisting of 3 to 10 members (not exceeding 10). The participants will hack remotely to propose and develop solutions that address the theme mentioned in the previous section.

4. DURATION

The hackathon will last for 2 weeks, starting on Wednesday, October 18, 2023, at 6:00 PM and ending on Tuesday, October 31, 2023, at 12:00 PM. Over the 2 weeks, the participants will be developing the solutions. Teams will be hacking on the solution remotely in their respective places. ECSA will assist in addressing issues that the participants may encounter. The activities and the hacking process are discussed in the section below.

5. HACKATHON ACTIVITIES

The following activities will take place:

a. Advertisement of Hackathon

The hackathon will be advertised on all ECSA's social media platforms, and communication will also be sent to the Deans Forum to ensure that the information that will be shared with the universities is forwarded using various means available. The package with all the documents will also be shared with the participants for them to familiarise themselves with all the necessary information they would need for the hackathon. The advertisement will be done on **05 October 2023,** giving all stakeholders 7 days to apply by filling out a form detailed in the application process section until the closing date on **12 October 2023,** which will be for the application period for the hackathon.

b. Application Process

The application process will start as soon as the advertisement has been sent out and communicated to all stakeholders. When participants apply to be part of the hackathon, they will be making use of the Microsoft Form that will be provided by ECSA for them to do so. A link or QR Code will be available on the poster so that participants can be able to fill in and provide ECSA with much of the needed information about the teams participating. This will happen in the following manner:

- One Member of the team can fill in the form.
- The team must have a name.
- The team will select a team leader who will oversee the entire team.
- Communication will be done via the team leader.

- Upon the closure of the application process, a briefing session will be held, and teams will be required to submit a proposal as detailed in section e below.

c. Communication of Hacking Activities

Upon the closure of entries, the following activities will be communicated via email to the participants who have indicated their interest by submitting details on the Microsoft Form.

- Date and time of the briefing session.
- Date and time of the hackathon.
- Date and time of the pre-hacking workshop.
- Date and times of the virtual sessions.
- Links to important communications channels (Meeting Links, Slack).

A Slack profile will be created for all the participants, which will serve as a communication medium for the duration of the hackathon.

d. Virtual Briefing Session

A virtual briefing session will be hosted on **16 October 2023**.

ECSA will meet the participants to discuss the goals, rules, expectations, and logistics of the hackathon. The hackathon briefing session will assist in the following:

- Clarifying the problem statement and the scope of the hackathon. This will ensure that the participants understand what they are expected to work on and what kind of solutions are acceptable.
- It will help to build excitement and engagement among the participants. The briefing session will showcase the prizes and opportunities that the hackathon offers.
- It can help to foster collaboration and networking among the participants. The briefing session will allow the participants to meet each other.
- It will help to prepare the participants for the hackathon. Through the briefing session, the participants will be provided with helpful information on the tools, platforms, and resources that they can use for the hackathon.

After the briefing session has concluded, team leaders will have to accept the Slack profile to confirm their participation and adherence to all that is needed by the hackathon.

e. Presentation Submissions and Reviews

The teams will be required to submit presentations (proposals of solutions) that will be reviewed by an ECSA Committee. These proposals will be evaluated according to the set criteria for this ECSA's hackathon. From this review, it will be determined how feasible solutions are, and further communication made so that the teams can be provided constructive feedback to rework their proposed solution in alignment with ECSA's business requirements for this year's ECSA hackathon. The following information will be included in the communication:

- Documentation relating to all the presentation.
- Structure of the presentation in accordance with the requirements.

f. Pre-workshop/Opening Ceremony

A pre-hacking workshop will be hosted on **18 October 2023.**

The pre-hacking workshop will provide ECSA with an opportunity to welcome the participants, inspire them, and guide them for the hackathon. The **design thinking masterclass** in the pre-hacking workshop will assist the participants in assessing the problem/theme from several perspectives to deliver high-quality solutions for the hackathon.

g. Hacking process

The hackathon will officially kick-start on **18 October 2023** at **6:00 PM**.

The hacking process in this hackathon will be the core activity where the participants will work on their ideas and solutions for the given theme. This process will involve the following steps:

- **Brainstorming ideas**: Participants will be encouraged to brainstorm their ideas amongst their teammates. Participants can use various methods to generate and refine their ideas for the hackathon, such as mind mapping, sketching, prototyping, or user research.
- **Hacking:** After brainstorming, participants will start coding, designing, or building their solutions for the hackathon. ECSA will allow them to use any tools, platforms, or resources that are available. Participants can also seek help from ECSA ICT experts and other experts,

or online sources if they encounter any challenges. ECSA ICT experts will be available on Slack Workspace to address any challenges that teams may be facing.

- **Testing and debugging:** Participants will be required to test and debug their solutions to ensure that they work as intended and meet the hackathon criteria.
- **Preparing for presentation:** Participants will need to prepare to present their prototypes to the judges and audience at the end of the hackathon. Participants will be allowed to use various formats or tools to showcase their solutions, such as slides, demos, or videos. Participants will be required to explain their solution approach, technical details, and how the prototype addresses the theme. Each team should develop and present a fully working solution.

h. Virtual Progress Sessions

- The virtual progress sessions will be conducted to track progress amongst the participants. All teams will be required to attend the virtual progress sessions.
- The sessions will be hosted on **20, 24 & 30 October 2023**.

i. Solution Presentation and Judging

- Participants will be required to submit the solutions by the **31st of October 2023** at **12:00 PM**.
- Presentations of the solutions by all teams partaking in the hackathon will take place on the **02nd of November 2023**.
- The presented solutions will be judged based on the criteria outlined in Section 7. The adjudicators will follow the criteria to score the presented solutions. The winners will be picked based on the highest points obtained.

j. Results, Awarding and Debriefing Sessions

- The results will be announced on the **10th of November 2023**. The awarding and debriefing sessions will be on the same date.

6. BUSINESS REQUIREMENTS

The mandatory business requirements for this hackathon are as follows:

a) **BR-01:** Proposed solutions must be based on relevant corporate UX/UI designs, functionality and easy to use websites that conform to ECSA corporate identity.

b) **BR-02:** Solutions that are acceptable include a Website, Web App or web-based Portal. Knowledge Management system that will structure ECSA's information and provide easy access whilst promoting security and reliability all round.

c) **BR-03:** Solutions must be secure and easily integrated with ECSA's existing systems and future technologies.

d) **BR-04:** Solution Must be scalable to increase user volumes and able to extend/include future business processes.

e) **BR-05:** The Knowledge Management system must be able to store and share files, relevant published material, connect employees and collaborate with external stakeholders.

f) **BR-06:** Solutions must be accessible to all stakeholders; This means that the website must adhere to all security protocols and information from Knowledge Management must be secured whilst ensuring that all the information is structured accordingly.

g) **BR-07:** The solutions must be user friendly.

7. JUDGING

The solutions presented will be judged by a team of adjudicators made up of selected ECSA Management and selected industry experts. The adjudication panel will consist of 5 members. Amongst the 5 panel members, 2 will be ICT experts (including 1 internal ICT expert), and the other 3 members will consist of ECSA Management.

A team that scores the highest points against the criteria in Table 1 below will be deemed the winner and then appointed to improve and implement their proposed solution.

Table 1: Criteria Format

CRITERIA ITEM	POINTS
1. Proposed solutions demonstrate an understanding of ECSA processes	20
2. Proposal demonstrates Innovation	20
3. Proposed platforms use 4IR Technologies	30
4. Proposed design and user experience	10
5. Implementation methodology enables incremental deliverables/value and benefits to ECSA	20
TOTAL	**100**

Table 2: Detailed Criteria

CRITERIA ITEM	CRITERIA DESCRIPTION	POINTS
Proposed solutions demonstrate an	• Clearly outlined development plan and the solution structure.	5
		5
	• The Methodology that will be used must	5

understanding of ECSA processes.	be stated to satisfy the project.	5	
	• Clearly defined quality assurance and quality controls to produce the best results. • The solution must be able to demonstrate continuous improvement and sustainability.	**20**	
Proposed Solution demonstrates Innovation.	• Is the solution that is modern and will be able to satisfy ECSA needs?	5	
		5	
	• Does the solution being proposed provide innovations that will improve the skills within ECSA?	10	
	• Does the business model used within the solution allow ECSA to improve?	**20**	
Proposed platforms use 4IR Technologies.	• Does the solution make use of the 4IR Technologies?	10	
		10	
	• Is Big Data understanding being outlined and demonstrated as well as being used in the solution?	10	
	• Does the solution involve cloud computing, or does it make use of a cloud environment?	**30**	

Proposed design and user experience.	• Is there a user interface that is proposed for the solution, and how's the look and feel?	2.5	
		2.5	
		2.5	
	• The design must incorporate ECSA corporate identity to ensure continuity.	2.5	
		2.5	
	• Design Use Cases must be able to clearly show all the relationships in the solution.		
	• The solution design must be able to demonstrate simplicity and easy to use.	**10**	
Implementation of the proposed solution enables incremental deliverables/value and benefits to ECSA.	• The of the proposed solution to be used must be flexible and it must demonstrate how the solution will be improved. Continuous improvement is key in ensuring that the developed solution will satisfy ECSA's needs.	5	
		5	
		5	
		5	
		10	
	• Outlining the of the proposed solution will allow the evaluation process to understand the direction the solution will take and whether the solution has growth prospects in mind.		
	• Outline handing over of the configurations and source code to ECSA to enable continuity without dependency	**20**	

	on the development team.	
TOTAL		**100**

8. PRIZES AND PAYMENT

1. There will be first, second, and third winning places.
2. The prize winners will go away with the following:
   a) First place winner – R17 000 cash prize + R80 000 award amount for the implementation of the solution.
   b) Second place winner – R 15 000 cash prize
   c) Third place winner – R10000 cash prize
3. Prize money
   a. The prize cannot be transferred and will only be handed over to the Winning Team.
   b. The prize cannot be exchanged for any prize other than the prize offered in this competition.
   c. Total prize money will be paid to the team's business account; this means that all winning team members will have to open a joint bank account.

NB! The amount of **R80,000** to be awarded to the first-place winning team will be paid in tranche payments and according to each milestone achieved. The successful completion will be determined/signed off by ECSA after the solution has been tested against test scripts/scenarios.

9. LEGAL

The winning team will enter into a short-term contractual agreement with ECSA. The agreement will assist in protecting ECSA and the winning team from any legal issues that may arise.

10. GENERAL

➤ ECSA will use Business Experts and current business process maps for existing business processes. New business process processes, i.e., pre-application assessment will be drafted and documented by ECSA.

➢ ECSA will provide access to its current systems to enable integration (currently Microsoft D365, Sage Evolution & PaperTrail).

➢ Participants are requested to include any other requirements/resources that they need as part of the proposed solution.

➢ This document contains the terms and conditions of this competition and prospective participants must not modify/qualify the specifications or come up with their terms and conditions.

➢ ECSA retains ownership of all Intellectual Property rights in the hackathon information documents that form part of the proposal and proposed solution. Prospect participants will retain the Intellectual Property rights in all the responses, but ECSA reserves the right to approve the making copies of, altering, modifying, or adapting their responses that have already been submitted, or to do anything which in its sole discretion is necessary to do for reasons relating to the proposal process.

➢ All solutions presented shall become the property of ECSA. ECSA will make all reasonable efforts to maintain the solutions in confidence. Proprietary information should be identified in each submission.

➢ ECSA reserves the right without furnishing any reasons whatsoever, to cancel, withdraw or re-advertise, or to appoint or not to appoint any of the potential participants.

➢ ECSA may request clarification or further information regarding any aspect of the prospective team. The prospective team must provide the requested information within forty-eight (48) hours after the request has been made; otherwise, the prospective team may be disqualified.

➢ ECSA is entitled to amend any application condition, validity period, or specification, or extend the return date of such an application before the closing date. All applicants, to whom the application documents have been issued, will be advised in writing of such amendments or extensions, promptly.

➢ During the application period, communications between applicants and ECSA will only be in

writing through email for any queries and questions. All communications, correspondence, documentation, manuals, applications, presentations, demonstrations etc., must be in English.

➢ The prospective team will bear all its costs in preparing, submitting, and presenting the proposed solution and all other costs incurred by it throughout the process. Furthermore, no statement in this competition will be construed as placing ECSA, its employees or its agents under any obligation whatsoever, including concerning costs, expenses or losses incurred by the prospective teams in the hacking process.

➢ If a prospective team breaches the conditions of this hackathon and, as a result of that breach, ECSA incurs costs or damages (including, without limitation, the cost of any investigations, procedural impairment, repetition of all or part of the hacking process and/or enforcement of intellectual property rights or confidentiality obligations), then the prospective teams indemnifies and holds ECSA harmless from any such costs which ECSA may incur and for any damages or losses ECSA may suffer.

➢ The successful prospective team shall be liable to ECSA for any direct damages and/or losses incurred by ECSA due to failure by the prospective team to perform its obligations in the manner required by the Service Level Agreement signed by the parties.

➢ The successful prospective team shall further be liable to ECSA for all indirect and consequential or special damages and/or losses suffered by ECSA because of gross negligence, wilful misconduct, a breach of confidentiality provisions stipulated in the signed Service Level Agreement between the parties, breach of applicable laws, infringement of a third party's intellectual property rights, or a criminal act committed by the prospective members within the team.

➢ The first-place winners of the hackathon will not be allowed to partake in any 2 of the hackathons that may follow.