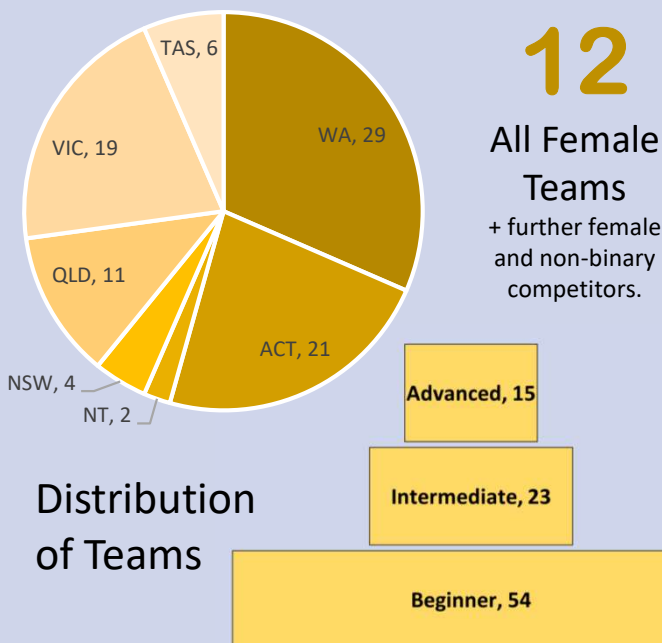# PECAN+ Capture The Flag 2024

Snapshot 1

INTRODUCTION

PECAN+ Capture The Flag is a free, national cyber security competition for beginner through to advanced skilled high school students. PECAN+ CTF is a collaborative initiative that brings together Australian higher education and vocational institutions, cyber security industry, teachers and students around the aim of raising cyber security awareness, skills and aspirations.

The 4 hour-long PECAN+ CTF 2024 Competition was held on August 4th, 2024. This event was preceded by a range of Training opportunities to upskill and prepare students to tackle cyber security and problem-solving challenges.

2024 ENGAGEMENT FIGURES

PECAN+ CTF 2024 saw 92 Teams of high-school students (in years 9 – 12) compete. The total national registration numbers were 353.

Pie chart: TAS, 6; WA, 29; VIC, 19; QLD, 11; NSW, 4; NT, 2; ACT, 21

12 All Female Teams
+ further female and non-binary competitors.

Distribution of Teams

Advanced, 15
Intermediate, 23
Beginner, 54

NATIONAL HOSTS & LOCATIONS

PECAN+ CTF is led by Edith Cowan University (Western Australia) and invites agencies around Australia to host PECAN+ CTF activations to provide the opportunity for engagement to students across States and Territories. In 2024, PECAN+ CTF activations were located in:

- WA: Edith Cowan University, Joondalup Campus.
- NT (inaugural year): Charles Darwin University – led by NT Department of Corporate and Digital Development.
- QLD: TAFE Queensland, South Bank Campus – with support from White Rook Cyber.
- ACT: Australian National University & University of Canberra – led by Canberra Cyber Hub.
- NSW: University of Wollongong, Liverpool Campus – with support from LifeJourney.
- VIC: Monash College & Box Hill Institute.
- University of Tasmania, Hobart & Launceston (Inveresk) Campuses.

SPONSORS AND SUPPORTERS

2024 Platinum Sponsors
- Australian Signals Directorate
- Yira Yarkiny Group

2024 Silver Sponsors
- Seamless Intelligence
- Sekuro
- Western Australia Office of Digital Government

Platform Partner
- Kasm Workspaces

Prize Sponsors
- Trustwave
- Hack The Box

Local Sponsors and supporters:
CyberWest Hub; Australian Computing Society; White Rook Cyber; Proactive Labs; Ionize; Cyconsol; Solution Tech; Questacon; Triskle Labs; LifeJourney.

National Lead
- Edith Cowan University School of Science

Tech Lead
- Tom Plant

CYBER TRAINING ACTIVITIES

PECAN+ supports the development of cyber security skills in youth. To prepare student participants to compete, training activities were offered in the lead up to PECAN+ CTF Competition Day across the country.

7 in person Training Days   **3** online Training offerings

Training addressed topics ranging from: cyber tools; Linux skills; cryptography; steganography; digital forensics;

OSINT; reverse engineering; web exploitation.

Under a whole-of-cyber-ecosystem model, PECAN+ training was delivered by TAFE and university undergraduate and postgraduate student volunteers, Industry and Government representatives, and cyber security academic staff.

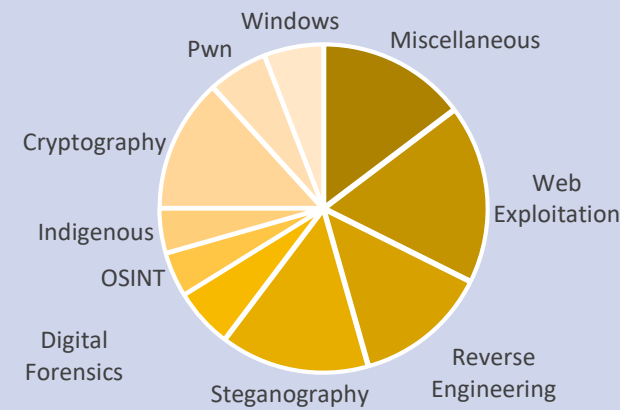Embedded in Training Days were presentations and panel sessions from Government and Industry representatives.

7.2%

Feedback respondents reported the involvement of cyber security Industry and Government representatives as their *favourite* part of the Training Day offerings.

CHALLENGES

PECAN+ is a Capture The Flag (CTF) competition that sees students tackle challenges using cyber security and problem-solving skills. The goal of each challenge is to recover a novel string of text - letters, numbers and characters - called a "flag".

All PECAN+ CTF 2024 challenges were created and contributed by Australian university students and Government staff. **Sixty-eight** CTF challenges were presented during the competition across a range of categories, including three challenges with Indigenous themes, and a 2024 ASD Challenge (cryptography theme):

Pie chart categories: Windows, Miscellaneous, Pwn, Web Exploitation, Cryptography, Indigenous, OSINT, Reverse Engineering, Digital Forensics, Steganography

The most popular (based on feedback on "favourite challenge" from 125 respondents) challenges were found in the categories: Misc, OSINT and Web Exploitation. The top 10 most solved challenges were majority Steganography, Web Exploitation or Misc themed.

STUDENT FEEDBACK

Response to PECAN+ CTF 2024 has been overwhelmingly positive. Feedback from 125 respondents (2024 competitors) indicated:

➢ A shift in confidence in addressing cyber security challenges from 2.08 to **3.35** (out of 5), on average, following participation in PECAN+ CTF 2024.
➢ An average **4.08** (out of 5) rating for the whole of PECAN+ CTF 2024 experience.
➢ **88%** of respondents will compete in PECAN+ CTF again.

Themes in the feedback for PECAN+ CTF included strong use of the words: **fun**, **perfect** and **good/great**.

Drawn from feedback, popular aspects of PECAN+ CTF 2024 included "**teamwork and social interactions**", "**Industry/Govt involvement**", "**Learning**" and "**Food**".

"Working with my team to solve the challenges and the complete focus it brings and satisfaction after."

"It was really great meeting new people and learning more about cybersecurity".

"My favourite part was doing the practice challenges because it helped me get a better understanding of how CTF competitions work".

"The information that was given to us on the Training day was great and informing"

"Had lots of fun thanks!"

"Learning new skills and meeting new people."

— Feedback from PECAN+ CTF 2024 competitors.

PRIZE WINNERS

National prizes were awarded to a total of 17 Teams in ACT (8), WA (5), VIC (3), QLD (1) and to the Top Indigenous competitor (TAS). PECAN+ CTF focuses on inclusion of all skill levels and diversity in experience and background. Prizes were awarded across Beginner, Intermediate and Advanced divisions, to Top All Female (and non-binary) Teams and to the Top Indigenous Competitor.

In an exciting twist, the 2024 ASD Challenge remained unsolved by close-of-competition, but was left open for enthusiastic competitors to attempt. A prize of recognition was awarded to two Teams who completed the challenge back-to-back several hours post-Competition!

All Competitors will be provided with Certificates of Participation and access to a digital 2024 PECAN+ CTF Competitor Coin in recognition of their achievement.