PROJECT WEEK REPORT

3rd project week | 29 – 31 October 2019 (ATEC, Portugal)

ABSTRACT

The demands of general industry are for employees with increased levels of knowledge and skills applicable to each sector. ATEC has developed an integrated examination approach designed to add value to the qualification and improve the probability of superior employment opportunities for students

QUALITY CATEGORY

- ☐ Guidance
- ☐ Learning
- ✓ Examination

QMS4VET Consortium

The partners within the QMS4VET project are:

- Aventus (www.aventus.nl)
- ATEC (www.atec.pt)
- BBS Syke EUROPASCHULE (www.bbs-syke.de)
- bit Schulungscenter (www.bitschulungscenter.at)
- West Lothian College (www.west-lothian.ac.uk)
- Kainuun ammattiopisto (www.kao.fi)

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INTRODUCTION

ATEC is a private Training Academy certified by ISO 9001:2015 with its headquarters located in Palmela, south of Lisbon, and with a delegation in the North region of Portugal in Matosinhos, Porto. ATEC is focused in providing EQF level 4 and 5 technical vocational training to youngsters and adults, and also to employees from companies that select ATEC as their training provider.

During the QMS4VET third project week, ATEC put together a team of colleagues from the IT area to showcase the German Examination process from AHK, which is integrated in the level 5 Network and Systems Administration Specialist curriculum.

For more information about the QMS4VET project and other project week reports see https://www.aventus.nl/qms4vet

OBJECTIVES

The following objectives were set for best practice with respect to the ATEC integrated examination approach:

1. Certify that learners have acquired a widely recognised high quality level of competences;
2. Add value to an existing qualification;
3. Introduce a certificate which is transferable internationally in the relevant subject area;
4. Enhance the probability of superior employment opportunities for students;
5. Address an identified market need.

METHODOLOGY

The overall aim of the ATEC integrated examination approach is to allow all students to gain a qualification which is recognised and valued in all countries with presence of German Industry in order to expand their employability opportunities, especially in Europe. In order to ensure this, the following objectives have to be met:

1. **Certify that learners have acquired a widely recognised high quality level of competences**

   In the context of the ATEC integrated examination approach, the exam system ought to be designed in such a way that all requirements of the awarding body are fully realised.

   An efficient examination system should ensure that, at the end of the learning programme, each student has acquired all the skills necessary to perform the duties expected by the awarding body and the employer, according to the ECVET standards (knowledge, skills and competences).

2. **Add value to an existing qualification**

   The ATEC integrated examination approach should be implemented in such a way as to enhance the content of the existing qualifications.

3. **Introduce a certificate which is transferable internationally in the relevant subject area**

   The students should be able to gain knowledge and qualifications which will allow them to work within the same sector across different countries.

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The integration of the German standards into the Portuguese education system allows international employers access to employees who combine the best of both systems.

4. **Enhance the probability of superior employment opportunities for students;**

   Students achieving the qualification would have more chances of employment with companies across multiple countries, in better positions and with improved promotion opportunities.

5. **Address an identified market need**

   The organisation should undertake sufficient research in the market with all stakeholders including employers and prospective students in order to ensure that there is a demand for the integration.

SWOT ANALYSIS

The following analyses the Strengths, Weaknesses, Opportunities and Threats (SWOT) of the ATEC case study.

Strengths	**Weaknesses**
• Industry relevant • Based on skills and competences (learning outcomes) • Simple and effective structures • Included in the education programme • Unique selling point for ATEC • Improved and strengthened relationship with important stakeholders • Increasing international employability chances • ATEC is sector role model for innovative integration practice • ATEC staff and technical resources are top class and high quality • Student levels of knowledge are validated by external AHK assessment requirements • Transferability of integrated AHK programme system to other sectors (best practice) • Certain parts of teaching are online leading to self-learning and independence • ATEC can pick the motivated students and deny/ reject others • AHK is recognised within sector circles and secures a certain quality standard worldwide • ATEC provides everything the student needs • Small number of students allows a high-quality standard because of limited availability of high-quality teachers • Close co-operation between teachers provides a high standard and AKH standard support • Close cooperation with companies allows to be up to date	• Time gap between teaching and assessment • Higher risk of failure with condensed exam period • Exam times not student centred • Only 50% success rate of programme • Students don't understand the value attributed to AHK qualification • Soft skills are not officially assessed in the AHK certificate • Assessment is too heavily end-loaded • Fixed programme does not specifically adapt to student's needs • No formal standardised quality management process to gather student feedback and allow changes • No formal standardised process to gather companies' feedback and allow changes

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Opportunities	Threats
• Flexible adaptation to new standards, programmes and customer demands • Roll out AHK system throughout Europe and beyond • ATEC system can be adapted for other industry assessments • Include German language program in AHK program – more job opportunities • Use the potential for growth • Improve ATEC brand by raising AHK awareness with non-German companies • Include AHK programme in commercial programme?	• Is programme flexible enough to adapt to changing AHK and sector requirements • Political and trade relationships (Portugal/Germany) may change and affect attractiveness of qualification • Government financial decisions could remove funding for exam after 2023 • Overflow of information: how to select and gain without information? • System could be too rigid for some students: requires complete commitment • Student retention negatively impacted by condensed examination period • Students can be deterred because of extra work and unknown added value • How to keep the motivation level throughout the course – threat of paid job alternative

Reflection and awareness on possible weaknesses and threats

In the preceding SWOT analysis an overview was given of the Strengths, Weaknesses, Opportunities and Threats of the ATEC integrated examination approach. In the following section, the strengths and opportunities are integrated in a Step-By-Step Implementation plan which can be used in implementing all or parts of the system. However, in doing so, it is important to be aware of the weaknesses and threats ATEC faces in implementing this integrated examination approach. Therefore, in the following paragraph a reflection can be found on the main and most important potential weaknesses and threats based on the results of the SWOT-analysis. This reflection serves to inform potential users of some vital basic steps to put in place when considering implementation of all or part of the ATEC integrated examination approach.

1. Evaluate continuously market needs and advantages of such an approach
2. Collaborate with awarding bodies, decision makers and stakeholders to ensure that integration will add value and is agreed by all stakeholders
3. Identify your capabilities in terms of teaching, equipment, funding and facilities
4. Identify where staff and resources can be repurposed
5. Create the course content according to market needs and quality standards of the awarding body
6. Train staff according to their needs and the requirements of the awarding body
7. Keep students well informed about the advantages of such an approach
8. Identify and target potential sources of applicants
9. Arrange for exam materials from awarding body and adapt for use within training programme
10. Train students focusing on examination criteria/standards
11. Evaluate students and success of training
12. Get feedback from external stakeholders on quality of students
13. Integrate external stakeholders feedback into the teaching system when needed.

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RECOMMENDATION FOR STEP BY STEP IMPLEMENTATION

The following recommendations can be used when implementation of all or parts of the ATEC integrated examination approach is considered.

- Identify relevant market indicators including stakeholder feedback and potential applicant availability and apply an appropriate research model
- Ensure that all required awarding bodies and employers have given input to the programme content and agree that value has been added to the qualification. Focus on pointing out the added value of the integrated approach in comparison to the standard approach in order to emphasize your unique selling point (USP)
- Refer to staff skills matrix, equipment and facilities logs and ensure that sustainable funding is in place before marketing the programme to applicants
- Ensure that staff training is available if necessary and that facilities are appropriately equipped
- For the content of the training programme a detailed and well-prepared curriculum, which also includes preparatory time for the final exam, is mandatory
- Develop advertising for the programme which will reach and attract your target applicants
- Ensure that an evaluation tool is developed which will effectively cover all areas of the programme and give required insights into results and value
- Gather feedback from external stakeholders using an effective mechanism to ensure that all relevant data is retrieved and analysed to inform improvement actions if necessary

EVALUATION

After analysis of the ATEC integrated examination approach the following conclusions can be drawn:

Advantages:

The approach facilitates an education which is currently not available anywhere else in Portugal. It provides students with a quality standard that is recognised throughout different countries and increases their employment opportunities.
The approach also gives students a high-quality delivery and assessment of the learning programme and the model can be transferred to other education providers.

Disadvantages:

The approach requires engagement from external stakeholders and successful marketing of the unique selling point. It is dependent on market demand and sufficient high-quality applicants capable of completing the course. Resources must be committed to the approach and funding must be sustainable. Substantial time and effort would be required to implement or to make changes once the approach has been established.

Tips for implementation:

Create a plan to define the learner journey to include targets, finances, planning and resources, and only proceed if the support of internal and external stakeholders for the approach can be guaranteed.

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APPENDICES

1. Agenda and Minutes 3rd QMS4VET project week
2. ATEC presentations

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Erasmus+ KA2 project QMS4VET

2018-1-NL01-KA202-038886

MINUTES 3rd PROJECT WEEK MEETING

28 Oct. – 1 Nov. 2019, Porto (PT)

LOCATION
ATEC
Edifício Siemens
Avenida Mário Brito (EN 107),
nº 3570 - Freixieiro
4455-491 Perafita

AGENDA MONDAY 28 OCTOBER 2019

Time	Item	Location
	Arrival	Sea Porto Hotel, Matosinhos
20:00	Welcome dinner	O Valentim, Matosinhos

AGENDA TUESDAY 29 OCTOBER 2019

Time	Item	Preparation/Presentation
08:45	Departure from hotel	
09:15	Welcome to ATEC	Durk van Wieren & Paulo Peixoto
09:30	Project Week(s) overview	Durk van Wieren & Duarte Silva
09:45	Presentation of ATEC	Paulo Peixoto
10:15	Presentation of the quality management system	Joao Alves
11:00	Visit to ATEC	Duarte Silva
12:00	Lunch	All
13:15	German Examination AHK in practice (EQF level 5 Course in Management of Computer Networks and Systems)	Pedro Vasconcelos
15:15	SWOT Analysis	All
17:00	End of Meeting	

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2018-1-NL01-KA202-038886

AGENDA WEDNESDAY 30 OCTOBER 2019

Time	Item	Preparation/Presentation
08:15	Departure from hotel lobby	
08:45	Evaluation of previous day	All
09:00	Innovation methodologies - STEM School	Manuel Teixeira
09:30	STEM School in practice - Microbit	Manuel Teixeira
11:00	SWOT Analysis	All
12:30	Lunch	All
13:45	Step by step implementation and Start of Digitalisation	All
17:00	End of meeting	

AGENDA THURSDAY 31 OCTOBER 2019

Time	Item	Preparation/Presentation
08:45	Departure from hotel lobby	
09:15	Evaluation of previous day	All
09:20	Digitalisation of results	All
11:00	Meeting with ATEC management to discuss meeting outcomes	Joao C. Costa
11:30	Presentation of 'Fake-off' education program	Laura Reutler
12:00	End of the meeting & departure for lunch and Porto Cultural Program	

AGENDA FRIDAY 1 NOVEMBER 2019

Time	Item	Preparation/Presentation
	Departure	

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2018-1-NL01-KA202-038886

PARTICIPANT'S LIST:

Organisation	Name	28 Oct. 2019	29 Oct. 2019	30 Oct. 2019	31 Oct. 2019	1 Nov. 2019
Stichting Regionaal Opleidingen Centrum Aventus	Durk van Wieren	√	√	√	√	√
Stichting Regionaal Opleidingen Centrum Aventus	Teun Gerritsen	√	√	√	√	√
ATEC - Associação de Formação para a Industria (Parque Industrial da Autoeuropa - Quinta da Marqueza 2950-557 QUINTA DO ANJO, PT)	Joao Alves	√	√	√	√	√
ATEC - Associação de Formação para a Industria (Parque Industrial da Autoeuropa - Quinta da Marqueza 2950-557 QUINTA DO ANJO, PT)	Paulo Peixoto	√	√	√	√	√
ATEC - Associação de Formação para a Industria (Parque Industrial da Autoeuropa - Quinta da Marqueza 2950-557 QUINTA DO ANJO, PT)	Duarte Silva	√	√	√	√	√
BBS Syke EUROPASCHULE (An der Weide 8, 28857 Syke, GE)	Silke Hillermann	√	√	√	√	√
BBS Syke EUROPASCHULE (An der Weide 8, 28857 Syke, GE)	Bernhard Zahn	√	√	√	√	√
bit Schulungscenter GmbH (Kärntner Str. 311, 8054 Graz, AT)	Laura Reutler	√	√	√	√	√
bit Schulungscenter GmbH (Kärntner Str. 311, 8054 Graz, AT)	Julius Riegler	√	√	√	√	√
bit Schulungscenter GmbH (Kärntner Str. 311, 8054 Graz, AT)	Michael Kvas	√	√	√	√	√

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2018-1-NL01-KA202-038886

Organisation	Name	28 Oct. 2019	29 Oct. 2019	30 Oct. 2019	31 Oct. 2019	1 Nov. 2019
Kainuun ammattiopisto (Opintie 3, 87100, Kajaani, FI)	Tarja Huovinen	√	√	√	√	√
Kainuun ammattiopisto (Opintie 3, 87100, Kajaani, FI)	Jukka Savilampi	√	√	√	√	√
Kainuun ammattiopisto (Opintie 3, 87100, Kajaani, FI)	Jyrki Kilponen	√	√	√	√	√
West Lothian College (Almondvale Cres, Livingston EH54 7EP, UK)	Shelagh Fraser	√	√	√	√	√
West Lothian College (Almondvale Cres, Livingston EH54 7EP, UK)	Eileen Greenshields	√	√	√	√	√
West Lothian College (Almondvale Cres, Livingston EH54 7EP, UK)	Allan McGregor	√	√	√	√	√
West Lothian College (Almondvale Cres, Livingston EH54 7EP, UK)	Scott Fleming	√	√	√	√	√

MINUTES OF THE MEETING:

Photo's of the meeting and handouts of the used presentations can be found in the QMS4VET Dropbox folder.

TUESDAY 29 OCTOBER 2019

1. **Welcome to ATEC:**
   Durk van Wieren opened the meeting, welcomes all participants and thanked ATEC for hosting this 3rd QMS4VET project week. After this, Paulo Peixoto took over and welcomed the participants on behalf of ATEC.

2. **Project Week(s) overview:**
   Durk gave the new participants an overview of the 1st and 2nd project week incl. the methodology and outcomes. After this he informed all participants about the activities since the last project meeting (Steering board meeting in Syke, Learning Outcomes Certificate, the interim report, Joao Alves presentation at the EOQ conference, the Innotecs and EfVET roundtables and the meeting evaluation survey).
   Duarte Silva went through the agenda (no changes necessary).

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3. **Presentation of ATEC:**
   Paulo gave a presentation about ATEC, its history, mission and methodology. Lot's of relevant questions were asked and answered in order to create a clear understanding amongst all participants.

4. **Presentation of the quality management system:**
   Joao Alves presented ATEC's overall quality management system and questions were answered to clarify all unclarities.

5. **Visit to ATEC**
   Duarte took the participants on a tour through the ATEC education centre. There were opportunities to talk with students and teachers during the tour.

6. **German Examination AHK in practice:**
   Following lunch Pedro Vasconcelos explained how ATEC has integrated the German AHK curriculum including examination in the EQF level 5 Course 'level 5 Network and Systems Administration Specialist'. A detailed discussion with the participants was part of the explanation.

7. **SWOT Analysis:**
   The participants were divided into 3 groups, forming a carousel to discuss the SWOT of the presented AHK certification. Outcomes were evaluated with the whole group and can be found in the 3rd Project week report (Integration of German AHK Examination process in EQF 'level 5 Network and Systems Administration Specialist' curriculum).

8. **End of meeting:**
   At around 17:00 hour the 1st meeting day was closed.

WEDNESDAY 30 OCTOBER 2019

9. **Evaluation of previous day:**
   A short evaluation of the previous day was held. All participants were happy with the process and outcomes so far. No changes necessary.

10. **Innovation methodologies - STEM School:**
    Participants moved to ATEC's 'Creative lab'. A classroom with extra ICT facilities. Manuel Teixeira explained the necessity and basics of STEM (Science, Technology, Engineering and Mathematics) education (see presentation in Project Week Report) and that ATEC promotes STEM education via Minecraft (Education edition, see: https://education.minecraft.net/) and via the use of Micro:bit (see: https://microbit.org/code/).

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11. **STEM School in practice – Micro:bit:**
    In order to really understand the benefits and use of the Micro:bit education methodology, the participants had to program the Micro:bit 'minicomputer' – after a short background instruction, with a few practical assignments. See the Dropbox shared folder for photos and short videos.

12. **SWOT Analysis:**
    The participants were divided into 3 groups, forming a carousel to discuss the SWOT of the presented Micro:bit methodology. Outcomes were evaluated with the whole group and can be found in the 3rd Project week report (Micro:bit education program as part of STEM education).

13. **Step by step implementation and Start of Digitalisation:**
    Participants were divided into two groups to discuss the 'Step by step implementation recommendations' for both studied subjects. Outcomes were evaluated with the whole group and can be found in both Project week reports.
    Both groups started the digitalisation process.

14. **End of meeting:**
    At around 17:00 hour the 2nd meeting day was closed.

THURSDAY 31 OCTOBER 2019

15. **Evaluation of previous day:**
    A short evaluation of the previous day was held. All participants were happy with the process and outcomes so far. No changes necessary.

16. **Digitalisation of results:**
    The digitalisation process of the previous day was continued and finalized.

17. **Meeting with ATEC management to discuss meeting outcomes:**
    Mr. Joao Costa (ATEC's General Director) visited the participants in the meeting room and had a discussion with the participants about the outcomes of the project week.

18. **Presentation by Laura Reutler about their developed 'Fake-off' education program:**
    Partner 'bit Schulungscenter' has developed an educational program about how to recognise fake news. She held a presentation about the outcomes, which can be found at:
    PROJECTWEBSITE: http://fake-off.eu/
    FACEBOOK: https://www.facebook.com/FAKE-OFF-421377148289668/
    Participants agreed to take this information home and distribute it in their education centres.

19. **End of the meeting & departure for lunch and Porto Cultural Program:**
    After thanking all participants for their collaboration and ATEC for their wonderful organisation and hospitality, the 3rd QMS4VET project week meeting was closed at around 12:00 hour and the cultural experience was started. Photo's can be found in our QMS4VET Dropbox folder.

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atec

Network and Systems Administration Specialist

Specialist Technology Course – Level 5 E.U.

www.atec.pt

1

Professional Training

atec

Partnership with:

Level 4 – High School

Level 5 – Especialist

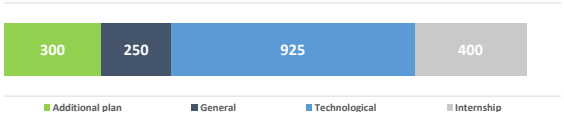
Level 6 - Degree Integration Program

2

Professional Training
Specialist Technology Course – Level 5 E.U.

atec

Network and Systems Administration Specialist
(Level 5): 1.875 hours



3

mathematics

Network and Systems Administration Specialist
General and Scientific training

atec

General – 150 hours

- Portuguese
- English
- Mathematics

Economy and Legislation – 100 hours

- Business economics
- Company and sales force management
- Time management and work organization
- Labor laws

4

Network and Systems Administration Specialist
Addicional Plan

atec

Hardware

- Internal Computer Architecture
- Devices and Peripherals

Networking

- Network Typologies
- Network Protocols - Installation and Configuration

Systems

- Operating Systems - Installation and Configuration
- Linux - Installation and Configuration

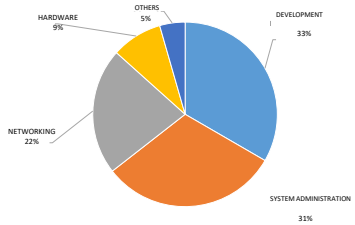
Developer

- Algorithms
- Language Basics
- Information Systems Analysis

5

Network and Systems Administration Specialist
Technological

atec



6

Network and Systems Administration Specialist
Hardware Technician / Network Administrator

atec

- Hardware Architecture
- Hardware Maintenance

- Local Network Instalation
- Hardware and Network Computers
- Network Computers (advanced)
- Network Services
- Troubleshoot
- Network needs in an organization

- Security Policies

7

Network and Systems Administration Specialist
CISCO CCENT Certification

atec

8

Network and Systems Administration Specialist
Software Technician / System Administrator

atec

- Operation Systems Introduction
- Client-Server Architecture
- Servers Operation Systems - Configuration

- Clients Operation Systems (Propietary platform)
- Server Operation Systems (Propietary platform)
- E-mail Server

- Operation Systems Open Source
- Server Operation Systems Open Source
- Services Configuration on a Linux Server

9

Network and Systems Administration Specialist
Developer / Database Developer / Database Administrator

atec

- Advanced word processing management
- Advanced Spreadsheet Management

Office

- HTML5, CSS3 and JS
- Programming Concepts
- Structured programming and data types
- Static, composite and dynamic data structure
- Object Oriented Programming

Visual Studio

- Analysis of systems and database structures
- SQL database structure
- SQL programming
- Database Servers

SQL Server

10

Network and Systems Administration Specialist
AHK Certification

atec

TG1
Ganzheitliche Aufgabe I

TG2
Ganzheitliche Aufgabe II

ES
Wirtschafts- und Sozialkunde

PROJ
Betriebliche Projektarbeit

AHK

Geschworene und Zertifizierung von Lehrern

11

Network and Systems Administration Specialist
AHK Certification

atec

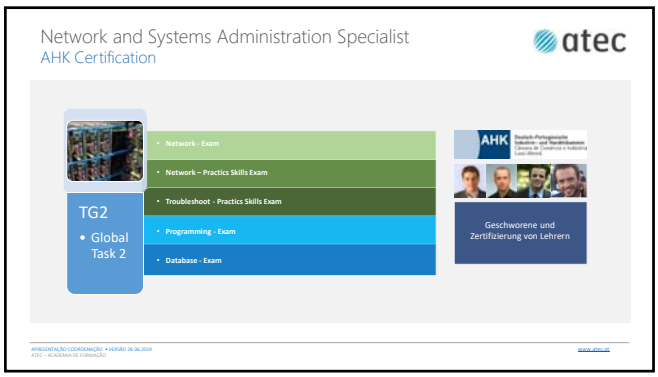
TG1
- Global Task 1

- Technical English - Exam
- Systems Administration – Practics Skills Exam
- Microsoft Systems Administration - Exam
- OpenSource Systems Administration - Exam

AHK

Geschworene und Zertifizierung von Lehrern

12



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14

15

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17

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Professional Training
Partnerships with companies

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Professional Training
IT Coordinators

Pedro Vasconcelos
Computer engineer
Project Manager & Software Solutions Expert

Nuno Oliveira
MCSE / CCAI
Microsoft & CISCO Instructor

Nuno Fonseca
Computer engineer
Palo Alto & CISCO Instructor

Helder Pinto
Computer engineer
WebDeveloper & WebDesigner

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Professional Training
IT Trainers

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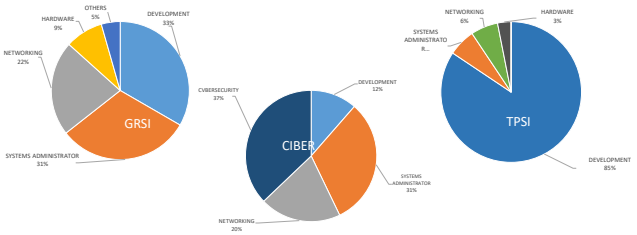
Professional Training
IT Courses



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Questions?

Thank You.

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