Publication date : 05/23/2024

Course : PC support, maintenance and configuration

Practical course - 4d - 28h00 - Ref. SPC
Price : 2260 € E.T.

This hands-on course will show you how to integrate a PC from an empty case, and how to methodically solve classic problems and incidents. It will explain which hardware configurations are necessary and sufficient for the different uses of a PC (office, workstation, web server...), as well as the characteristics of standard models from major manufacturers (HP, Dell...). It will also show you the fundamental entry points to Windows hardware configuration.

Teaching objectives

At the end of the training, the participant will be able to:

- Know the different characteristics of computer components
- Install and uninstall individual computer components
- Set up a mini network with shared resources
- Implement a methodology for diagnosing and troubleshooting components
- Monitor server performance

Intended audience

PC support specialists, technicians involved in the installation, operation, maintenance and support of PCs.

Prerequisites

Basic computer skills.

Course schedule

PARTICIPANTS

PC support specialists, technicians involved in the installation, operation, maintenance and support of PCs.

PREREQUISITES

Basic computer skills.

TRAINER QUALIFICATIONS

The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

ASSESSMENT TERMS

The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more.
Participants also complete a placement test before and after the course to measure the skills they've developed.

1 PC assembly/disassembly

- The different housings. Advantages, disadvantages.
- Motherboard: the different architectures.
- Processors and their differences.
- Plug and play components.
- The different slots, RAM and chipsets.
- Sound card/graphics card.
- Hard/flexible disk drives. CD-ROM drive.
- Serial/parallel/USB ports (PS2...).
- Memory types (DRAM, SDRAM, RAMBUS, DDR, DDR 2, DDR 3...). Incompatibilities.
- Bus types: ISA, PCI, PCI Express, USB...
- Role of the BIOS. Key values, UEFI (Universal Extensible Firmware Interface).

Hands-on work

Dismantling and reassembling a microcomputer. Installing memory and processor modules. BIOS setup parameters. Connect IDE ribbon cables to peripherals. Validate PC integration.

2 Data storage

- Types of readers and controllers.
- Specific features of SCSI and SATA peripherals.
- Hard disk partitioning.
- BIOS boot order configuration.

Hands-on work

Installation of an internal SATA disk, operating system and drivers. Set boot order and hard disk options in BIOS Setup.

3 Printing peripherals

- Different types of printer.
- Printer connection.
- Printing on operating systems (concept and implementation).

Hands-on work

Logical printer installation.

4 The PC in a network context

- Interconnection equipment.
- Cabling (BNC, RJ45, fiber optics, wireless card).
- Network card configuration.
- Basic IP configuration under Windows.
- Shared printers.

Hands-on work

Installation of a mini-network with resource sharing (disk, optical drive and printer). Configure network cards, test network hardware, configure TCP/IP, share resources. Connect, configure and test Internet gateway.

TEACHING AIDS AND TECHNICAL RESOURCES

• The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
• At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
• A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at psh-accueil@orsys.fr to review your request and its feasibility.

5 Multimedia peripherals (graphics, sound, CD-ROM, burner)

- Screen adapter types: VGA, SVGA, XGA and graphics gas pedals.
- The different standards, PCI Express 16x video.
- Refresh rate, interleaving, multisynchronization. The latest generations (Crossfire, SLI...).
- CD-ROM, CD-R, CD-RW, DVD, DVD-RAM, Blue-Ray, HD DVD drive.
- Install several graphics cards.
- USB port (webcam, recorder, mouse, etc.).
- Firewire port (disk, camcorder, etc.).
- Multimedia hard disk.

6 Advanced configuration

- Installation of several IDE disks.
- Installation of removable disks.
- Install a new processor.

Hands-on work

Equip a PC with a removable disk and an internal disk to offer a fault-tolerant solution (only the removable disk would be changed). Use of a software solution to remount the fixed disk configuration. Creation of a master.

7 Classic problems and their solutions

- A list of the most common incidents.
- Troubleshooting methodology.
- Interrupt (IRQ) and I/O conflicts.
- Wrong boot sequence.

Hands-on work

Simulate faults using progressive scenarios. Interpretation of BIOS error messages (beeps and text messages).

8 PC troubleshooting strategy

- Preventive maintenance.
- Common causes of failure.
- Search for faulty components.
- Problems with keyboards and screens.
- The case of non-PNP operating systems.

Hands-on work

Using role-playing exercises defined by the trainer, trainees set up and troubleshoot a fault. Application of diagnostic and troubleshooting methodology.

9 Which configuration for which need?

- Performance differences between disks (cache, NAND memory, etc.).
- NCQ technology (native order queuing).
- Memory-hungry applications.
- Performance: the triplet of memory, CPU and disk.
- Network/graphic cards at different prices? What are the differences?
- GPU (graphics processor) consumption comparison.
- SATA (1,2 and 3), SCSI (SAS) and SSD disks.

Hands-on work

In a client/data server architecture (Web, ftp), observe server performance in different scenarios: IDE disk.

10 Technology watch

- Manufacturers versus assemblers: the standard offer of the main manufacturers. The advantages and limitations of assemblers.
- Windows software problems: basic entry points. Adding/removing/troubleshooting hardware.
- Sources of documentation on the latest developments and tests.
- Where can I find the missing drivers?

Dates and locations

PARIS LA DÉFENSE
2026 : 9 June, 20 Oct.