



Total Data Recovery Professional

Course
Duration:
10 Days

Course Fee:
₹45,000/-

Certificate to be issued by  **ACELab**® and  **ZOOM**
TECHNOLOGIES

The Total Data Recovery Professional Course is designed to provide a comprehensive understanding of data recovery from various storage devices such as HDD, SSD, SCSI / SAS drives, Flash drives, SD cards, and RAID arrays. Participants will learn how to identify and diagnose common issues with HDD, SSD, SCSI / SAS drives, Flash drives, SD cards, and RAID arrays and use PC3000 products to perform advanced data recovery techniques. By the end of the course, participants will gain the confidence and expertise necessary to successfully recover data from even the most challenging HDD data recovery scenarios using the PC3000 products.

ZOOM
TECHNOLOGIES

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COURSE OVERVIEW

Module 1: Basics of Hard Disk and Data Recovery

This module provides an overview of different types of storage devices and hard disks, their recording technologies, and file systems. Participants will learn data recovery using top data recovery software for logical issues such as data corruption, partition deletion, formatted, and deleted data.

Module 2: Data Recovery from HDD, Flash Drive & SD Card with Data Access Issues / Firmware Issues

This module focuses on data recovery from hard disks, Flash drive & SD card with firmware/data access issues. It covers top market recovery software, PC-3000 products, firmware repair, and diagnosis of HDD issues. Participants will learn an overview of PC-3000 Data Extractor and the procedure for recovering lost partitions, deleted files using different parameters. This module covers firmware repair and data recovery from Seagate, WD, Toshiba, and Samsung hard disks using PC3000.

Module 3: Data Recovery from SSD (SATA / mSATA / M.2 SATA / NVMe)

This module covers an introduction to Solid State Drives (SSD) and different types of SSDs and their functionalities. Participants will learn an overview of firmware issues in SSD, reasons for firmware damages, and firmware repair and diagnosis of SSDs with SATA, mSATA, M.2, PCIe (NVMe/AHCI), PCIe x16, Apple Macbook etc., interface by using PC-3000 SSD software.

Module 4 Data recovery from SAS / SCSI & RAID

This module covers data recovery from SCSI/SAS & RAID arrays. The module will start with an introduction to SAS/SCSI, followed by the reasons for failure of SAS drives. Participants will then learn about the diagnosis and firmware repair of SAS drives using PC-3000 SAS software. The module will also provide an introduction to RAID, including hardware/software RAID and types of RAID such as RAID 0, RAID1, RAID5, RAID6, RAID10, RAID 50, RAID 60, JBOD, etc. Participants will also learn

about recovering data from damaged RAID arrays.

Module 5: Data Recovery from Damaged USB Flash Drive & SD Card

This module covers the basics of flash storage devices, including an introduction to different types of flash drives such as USB, SD, and MSD. Participants will also learn about the physical structures in flash drives and the reasons for logical issues in flash drives. The module includes procedures for data recovery from physically damaged flash drives, including flash chip off and monolith procedures.

The module also covers data recovery from damaged USB flash drives (NAND flash), including removing the NAND flash from the USB, reading the NAND flash using PC3000 Flash, and applying correct preparations to rebuild the data using PC3000 Flash.

Additionally, the module covers data recovery from damaged SD cards and USB flash drives (monolith), including sanding down the MicroSD card or USB flash drive monolith, finding pinouts, reading data from pinouts using the PC3000 Spider board, and applying correct preparations to rebuild the data using PC3000 Flash.

Module 6: Data Recovery from HDD with Physical Issues

This module provides an in-depth understanding of hard disk mechanical structure and components. Participants will learn how to identify mechanical problems and solve issues through head or platter replacement. The module includes practical demonstrations of head and platter replacement and donor matching guides for head replacement.

Upon completion of this course, participants will have a thorough understanding of data recovery techniques for various types of storage devices such as HDD, SSD, SCSI/SAS drives, Flash drives, SD cards, and RAID arrays they will be equipped with the knowledge and skills to diagnose and repair firmware and physical issues and recover lost data.



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MODULE – 1 Basics of Hard Disk and Data Recovery

Hard Disk Basics

- Introduction to storage devices
- Types of storage devices
- Types of Hard disk and their mechanism
- Types of Recording Technologies in Hard disks
- Types of File Systems and their structure
 - FAT
 - NTFS
 - APFS
 - HFS
 - ExFat

Data Recovery using DR Software

- Introduction and discussion about top data recovery software
 - R-studio
 - Recuva
- Logical issues such as Data corruption, partition deletion, formatted and deleted data

MODULE – 2 Data Recovery from HDD, Flash Drive & SD Card with Data Access Issue / Firmware Issues

Data Recovery from HDD with Firmware Issues

- Top Market Recovery softwares
 - PC3000
 - MRT
- Introduction to PC-3000 Products
- Discussion on Firmware Repair and Data Access Issues

Data Recovery from HDD, Flash Drive & SD Card with Data Access issue using PC3000

- Overview of PC3000 Data Extractor
- Building head map in Data Extractor

- Imaging the drive and knowing it's importance in recovery
- Understanding sub-map creation using different parameters
- Procedure for recovering the lost partitions, deleted files
- Understanding RAW method

Data Recovery from Seagate Hard disks using PC3000

- The overview of Seagate Hard drive & Families
- General checklist of Seagate drives
- Understanding importance of backup of ROM and System files
- Understanding head map and determining the problematic head in the case of internal noises
- Determining the specific physical issue using internal noises of drive
- Usage of terminal and determining the logical issues using its Log
- Procedure for fixing Servo Processor is Reset Error
- Solving DWF issue
- Procedure for fixing SIM error 1009
- Steps for fixing Init SMART Fail error
- Procedure for solving to deal with Sense code = 87270000 error
- Unlocking SED/Rosewood drives
- Steps for solving No HOST FIS-Ready Status Flags error
- Resolving SMP flags issue

Data Recovery from WD Hard disks using PC3000

- The overview of WD hard disk & families
- General checklist of WD SATA drives
- General checklist of WD USB drives
- Discussing important modules in ROM and Service area
- Determining the specific physical issue using internal noises of drive
- Handling VSC ERR INV FUNC CODE REQ error in 2.5" drives

- Resolving WD hard disk slow responding issue
- Recovering data in WD USB encrypted hard disk
- Time-Limited Error recovery
- Usage of locking UA writing in SMR drives
- Regenerating second level translator
- Unlocking SED ROM using PC3000
- Usage of ROM head map when drive has issue with one or multiple heads
- Service Area Checking's
- Procedure for checking the system heads manually
- Procedure for transferring SA modules to another place
- Fixing the drive if it has wrong passport ID
- Fixing Relo-list Issue

Data Recovery from Toshiba Hard disks using PC3000

- The overview of Toshiba hard disk & Families
- General checklist of Toshiba drives
- Understanding importance of backup of CP modules
- Determining the specific physical issue using internal noises of drive
- Discussion on resolving G-list error

Data Recovery from Samsung Hard disks using PC3000

- The overview of Samsung hard disk structure
- General checklist of Samsung drives
- Working procedure of Samsung hard drive
- Understanding importance of backup of Modules
- RAM head map editing
- Determining the specific physical issue using internal noises of drive
- Discussion on solving LED Errors

MODULE – 3 Data Recovery from SSD (SATA / mSATA / M.2 SATA / NVMe)

- Introduction to Solid State Drives (SSD)
- Different Types of SSD - SATA, mSATA, M.2, PCIe (NVMe/AHCI), PCIe x16, Apple Macbook etc., and their functionalities.
- Types of File Systems and their structure
- Firmware issues in SSD
- Reasons for Firmware Damages in SSD
- Firmware Repair and diagnosis of SSDs with SATA, mSATA, M.2, PCIe (NVMe/AHCI), PCIe x16, Apple Macbook etc., interface using by PC-3000 SSD software

MODULE – 4 Data Recovery from SCSI / SAS & RAID Array

- Introduction to SAS / SCSI
- Reasons for Failure of SAS Drives
- Diagnosis and Firmware Repair of SAS Drives by using

PC-3000 SAS software

- Introduction to RAID
- Hardware / Software RAID
- Types of RAID
 - RAID 0
 - RAID 1
 - RAID 5
 - RAID 6
 - RAID 10
 - RAID 50,
 - RAID 60
 - JBOD,etc.)
- Recovering data from damaged RAID arrays

MODULE – 5 Data Recovery from Damaged USB Flash Drive & SD Card

Flash basics

- Introduction to Flash storage devices.
- Types of Flash Drives (USB, SD, MSD,)
- Types of Physical structures in Flash drives
- Reasons for logical issues in Flash Drives
- Flash Chip Off and Monolith procedures on Physically damaged Flash drives

Data Recovery from Damaged USB Flash Drive (Nand Flash)

- Removing Nand Flash from USB
- Reading Nand Flash using PC3000 Flash.
- Apply Correct Preparations to rebuild the data using PC3000 Flash

Data Recovery from Damaged SD Card / USB Flash Drive (Monolith)

- Sanding down the MicroSD Card /USB Flash Drive Monolith)
- Finding pinouts
- Reading Data from pinouts using from PC3000 Spider board
- Apply Correct Preparations to rebuild the data using PC3000 Flash

MODULE – 6 Data Recovery from HDD with Physical issues

- Hard disk Mechanical Structure and components
- Mechanical Failure Symptoms
- Identifying Mechanical Problem and solving issue by Head or Platter Replacement
- Introduction to Head Replacement Tools and their usage
- Donor matching Guides for Head Replacement
- Practical Demonstration of Head Replacement and Platter Replacement



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