

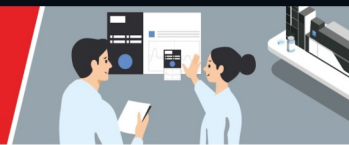
TRAINING COURSES

Analytical & Measuring Instruments

YEAR
2024/25

Excellence in Science

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Analytical & Measuring Instruments

TRAINING COURSES

Year 2023/24



Digital Laboratories
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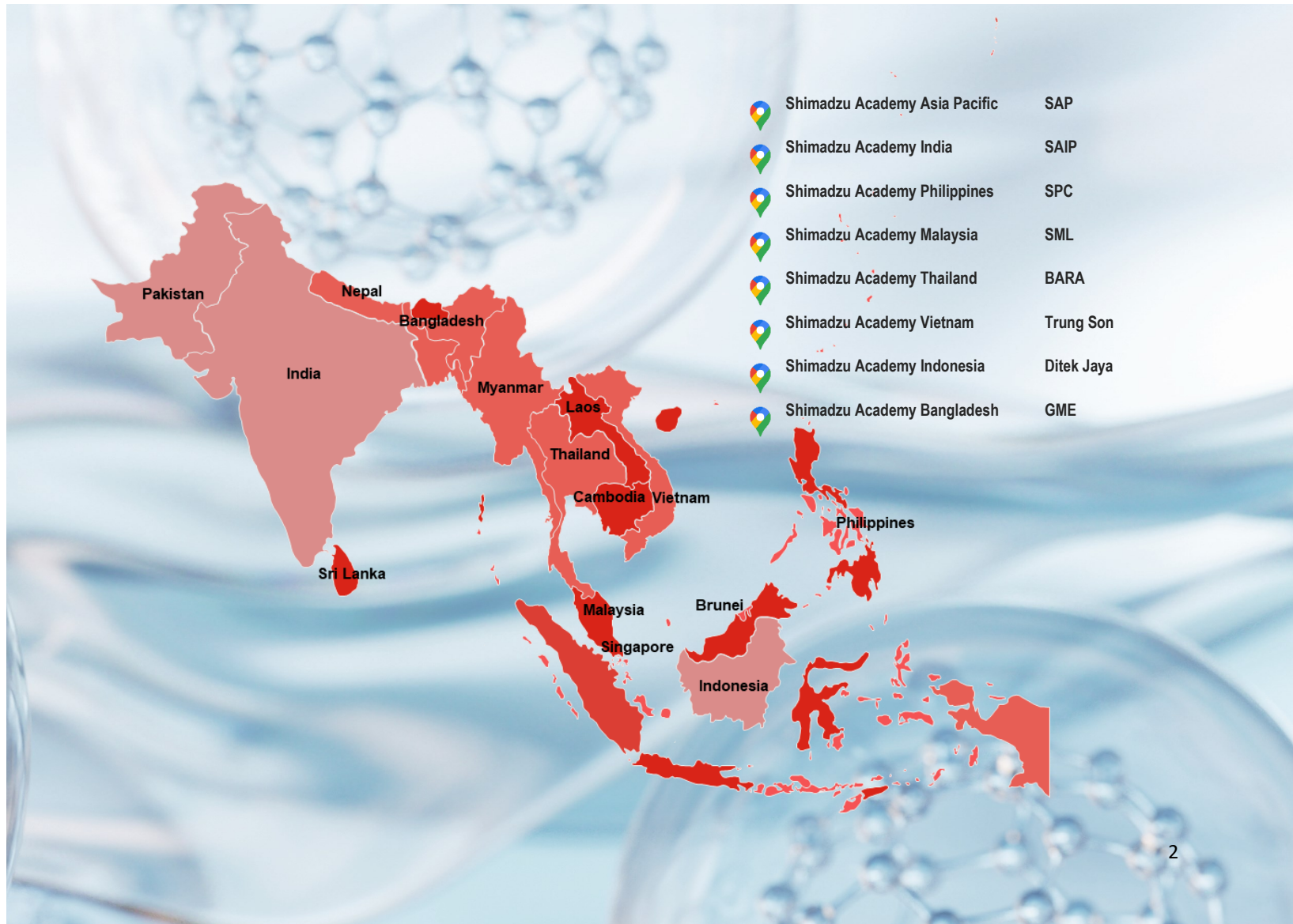
Course Module — e-Learning

Code	Course Module	Hours	\$/Pax
eGC-001	Principle, Operation, And Maintenance of Nexis GC-2030 (With FID)	10	400
eGCMS-001	Principle, Operation, and Maintenance of GCMS-QP2020 NX	10	500
eLC-001	Principle, Operation, and Maintenance of Advanced Series HPLC	10	400
eLCMS-001	Principle, Operation, and Maintenance of TQ LCMS-800X Series	10	500
eLCMS-002	LabSolutions Insight – The Multi-Analyte Quantitation Software for LCMS-800X Series	4	400
eRF-001	Principle, Operation, and Maintenance of RF-6000 Fluorescence Spectrometer	4	400
eTOC-001	Principle, Operation, and Maintenance of TOC-L Series	8	400

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ANYWHERE.
ANYTIME.**

Shimadzu Academy







Our Course Modules

Shimadzu Academy Asia Pacific (SAAP) provides a wide range of training course modules. The A-type courses teach operation & maintenance of Shimadzu analytical instruments of various models, configurations and accessories. The courses cover principles, instrumentation, s/w features, data analysis and basic maintenance that are required to use the instruments. In addition, some selected B-type courses are offered, which include advanced and applications training such as method development, sample pre-treatment, validation using Shimadzu instruments. A total of 87 course modules are available on HPLC/UHPLC, LC-MS (SQ, TQ, Q-TOF), GC, GC-MS (SQ-TQ), Spectroscopy (UV, FTIR, RF), elemental analysis (AAS, ICP and ICPMS) and life science instrumentation (MALDI-TOF series).



Self-paced e-Learning Courses

The Digital Laboratory provides an online platform for e-Learning of analytical instrument courses. These self-paced courses offers flexibility (3 months) and an alternative approach for users to learn the operation and maintenance from principles, instrumentation, s/w to data analysis. Training certificate will be issued to participant who has completed the courses as per the requirements. Eight self-paced e-Learning courses (GC, GCMS, HPLC, LCMS, TOC and RF) are available. Please visit Digital Laboratory website for more details and registration procedure from below link:

<https://digital-laboratories.an.shimadzu.com.sg/courses>



High Performance
Liquid Chromatography
(HPLC) With Laboratory
Informatics



Scalable - Manageable - Automated Regulated Total-compliance (SMARTLab)

Singapore Polytechnic (SP) and Shimadzu (Asia Pacific) Pte Ltd launched the SMARTLab initiative on December 9, 2021. This advanced facility, equipped with cutting-edge analytical instruments, supports the digital transformation of QA/QC laboratories. It will also facilitate physical and virtual learning journeys, along with hosting webinars and workshops to enhance SMARTLab technology applications. The initiative aims to benefit students completing Continuing Education & Training (CET) and Pre-employment Training (PET) programs.

Ultraviolet-Visible
(UV) Spectroscopy
With Laboratory
Informatics



Course Title	Learning Outcomes
High Performance Liquid Chromatography (HPLC) with Laboratory Informatics	<ul style="list-style-type: none"> • Prepare standards and samples through appropriate choice of lab techniques. • Perform qualitative and quantitative analysis of samples and interpret its data from spectrum and liquid chromatography.
Ultraviolet-Visible (UV) Spectroscopy with Laboratory Informatics	<ul style="list-style-type: none"> • Access and control of instrument remotely. • Manage data through use of laboratory informatics and analytics.





Sustainable Technology & Analytical Research Laboratory (STAR Lab)

Republic Polytechnic (RP) launched the new Sustainable Technology & Analytical Research Laboratory (STAR Lab) on 6th Jan 2023. The lab was launched in collaboration with Shimadzu (Asia Pacific). The 3,000 square-foot RP-Shimadzu STAR Lab is equipped with Laboratory 4.0 features and will support RP's focus in the study of agri-food, nutraceuticals, sustainable materials and specialty chemicals. This new facility will benefit 400 Pre-Employment Training (PET) and Continuing Education and Training (CET) students from RP each year.



Joint CET Courses - Republic Polytechnic and Shimadzu Asia Pacific

Course title	Schedule	Venue and facility
Nutrient Analysis for Urban Farming Produce	5-6 Jun 2024	 STAR (Sustainable Technology & Analytical Research) lab, Republic Polytechnic (Singapore)
	4-5 Dec 2024 Sign up here.	
Functional Food Analysis	14-15 Mar 2024	 Analytical instrument GC, HPLC, GCMS and LC-MS/MS
	11-12 Sep 2024 Sign up here.	

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HPLC / LCMS / Life Science Training



Principles, Operation and Maintenance of Nexera UHPLC with LabSolutions

Duration: 2 days

Course Code: HPLC-A101

A comprehensive course module for Shimadzu Nexera UHPLC series. The course covers from principles and instrumentation of HPLC/UHPLC to operation skills of the systems using LabSolutions workstation. Basic maintenances of Nexera systems are included.

Topics include:

Principles and instrumentation of UHPLC Nexera series
LabSolutions workstation and operation (system configuration, data acquisition, post-run data processing and reporting)
Quantitation analysis and methods with using external standards and internal standards
Preventive maintenance of UHPLC Nexera series.

Prerequisites

Fundamental knowledge of analytical chemistry is required.

Fees

S\$ 1300 per participant (excl. GST)

Method Development and Troubleshooting of HPLC and UHPLC

Duration: 2 days

Course Code: HPLC-B101



Advanced course for experienced HPLC and/or UHPLC users. Content includes method development and troubleshooting of HPLC & UHPLC, and method transfer from a conventional HPLC method to a UHPLC method.

Topics include:

Theory and principles of HPLC/UHPLC separation
Reversed-phase separation and method development approach
Method transfer from HPLC method to UHPLC method
Troubleshooting tips and skills

Prerequisites

Fundamental knowledge of analytical chemistry and HPLC are required.

Fees

S\$ 1300 per participant (excl. GST)

Course Module - HPLC and UHPLC

Code	Course Module	Days	S\$/Pax
HPLC-A101	Principles, Operation and Maintenance of Nexera UHPLC with LabSolutions	2	1,300
HPLC-A102	Principles, Operation and Maintenance of i-Series HPLC with LabSolutions	2	1,300
HPLC-A201	Gel Permeation Chromatography with GPC s/w	2	1,300
HPLC-A202	Prominence Ion Chromatography (Cation & Anion)	2	1,300
HPLC-A203	Supercritical Fluid Chromatography (SFC) with UV Detector	2	1,300
HPLC-A204	Preparative HPLC with FRC-10A	2	1,300
HPLC-A205	Preparative HPLC with LH-40	2	1,300
HPLC-A206	ELSD LT III Detector for HPLC	1.5	975
HPLC-A207	RID Detector for HPLC	1	650
HPLC-A208	Bioinert UHPLC System Nexera XS	2	1,300
HPLC-A209	RF Detector for HPLC	1	650
HPLC-B101	Method Development and Troubleshooting of HPLC and UHPLC	2	1,300
HPLC-B102	Selection of LC Column for Various LC Modes	1	650

Course fee excluded GST

Principles, Operation and Maintenance of LCMS-2050 with Labsolutions

Duration: 2 days

Course Code: LCMS-A101B



The course is dedicated for LCMS-2050 users covering from principles and instrumentation of ultrafast LCMS (UFMS) to hands-on sessions for well operation of the system and data analysis using LabSolutions. Interface maintenance and MS tuning are included.

Topics include:

Principles and instrumentation of single quadrupole LC/MS and DUIS interfacing techniques
LabSolutions for LCMS Software & Operation
Qualitative and quantitative analysis using Scan and SIM modes
New feature: Mass-it, i-peakFinder
DUIS interface maintenance and MS auto-tuning

Prerequisites

Fundamental knowledge of HPLC and analytical chemistry are required.

Fees

S\$ 1300 per participant (excl. GST)

Principles, Operation and Maintenance of Triple Quadrupole with LabSolutions for LCMS-8045/8050/8060NX

Duration: 2 days

Course Code: LCMS-A102N



The course is designed for users of Shimadzu triple quadrupole LC/MS/MS series LCMS-8045, LCMS-8050 and LCMS-8060NX. It covers from ultrafast TQ principles and instrumentation to hands-on sessions for well-operation of the systems using LabSolutions. Quantitative analysis method based on MRM mode and optimization of interface and MS parameters are focused. Interface maintenance and TQ tuning are included.

Topics include:

Principles and instrumentation of UFMS (TQ)
MRM optimization using Auto MRM optimization program
MRM method set up and quantitation of drug molecules
LabSolutions Post-run for data analysis
Interface parameters setting and optimization
Interface maintenance and MS tuning

Prerequisites

Fundamental knowledge of analytical chemistry and HPLC

Fees S\$ 1300 per participant (excl. GST)

LabSolutions Insight for Multi-data Quantitative Analysis

Duration: 1 day

Course Code: LCMS-A103



This module focuses on multi-analytes MRM data analysis using advanced s/w LabSolutions Insight for LCMS.

Topics include:

LabSolutions Insight—advantages and features
Insight workflow:

- Data view
- Method edit and update
- Flag and flagging criteria
- Review of results, approve or reject
- Reporting

Prerequisites

Attended LCMS-A102N

Fees: S\$ 650 per participant (excl. GST)

Principles, Operation and Maintenance of LCMS-9030/9050 – HRAM & MS/MS Applications

Duration: 3 days

Course Code: LCMS-A105



This course is designed for users of LCMS-9030/9050, Quadrupole Time-of-Flight Mass Spectrometry (Q-TOF). It includes lectures and practical sessions on the principles of HRMS, instrumentation of hybrid Q-TOF system, operation of data acquisition and data analysis for qualitative and quantitative analysis.

Topics include:

Theory and principle of HRAM analysis on LC-Q-TOF hybrid MS/MS
Instrumentation of LCMS-9030/9050
Data acquisition mode, MS, MS/MS, DDA and DIA
Mass calibration for accurate mass analysis - unique techniques
LabSolutions workstation and LabSolutions Insight Explore (Brief)
Method setup for various applications
Maintenance of interface, CDS and full tuning

Prerequisites

Fundamental knowledge of LCMS and analytical chemistry

Fees

S\$ 1950 per participant (excl. GST)

Untargeted screening analysis by DIA/DDA method with LabSolutions Insight Explore Workflow

Duration: 1 days

Course Code: LCMS-A106



This course is for learning Q-TOF data analysis skills for untargeted screening. The LabSolutions Insight – Explore s/w enables processing DIA & DDA data for precursor deconvolution and displaying. Tools, i.e., formula predictor, MS/MS library search, compound database search and fragment annotation, are used for identification of detected components.

Topics include:

LabSolutions Insight Explore – features and functions
Insight Explore workflows:

- Overview of untargeted screening workflow
- Analyze-DIA deconvolution, Analyze-Screen, Precursors
- Identification: formula predictor, MS/MS library search
- Structural elucidation: Assign (fragments annotation) and compound DB search

Prerequisites

Attended LCMS-A102N

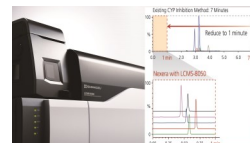
Fees

S\$ 650 per participant (excl. GST)

Method Development of LC/MS/MS for Quantitative and Qualitative Analyses

Duration: 2 days

Course Code: LCMS-B102



This advanced course is designed for LC-MS/MS (TQ) users who wish to further develop skills in method development. The course focuses on method development strategy and approach for high sensitivity, multi-target quantitative analysis in MRM

mode as well as qualitative analysis using modes like product ion scan, precursor ion scan, neutral loss scan.

Topics include:

Strategies and approaches in LC-MS/MS method development
Quantitative MRM method for high sensitivity
Evaluation of matrix effect, recovery, repeatability, LOD/LOQ, linearity etc
Qualitative analysis methods and applications

Prerequisites

Attended LCMS-A102N

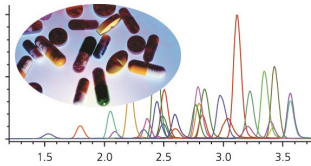
Fees

S\$ 1300 per participant (excl. GST)

Quantitative Bioanalysis of Drugs by LC/MS/MS – Method development and Validation Procedure

Duration: 2 days

Course Code: LCMS-B201



An advanced course designed for LC/MS/MS users to develop MRM-based method for quantitative analysis of drugs in biological samples. The course introduces the requirements of

bio-analysis methods for BA/BE study, clinical analysis and drug discovery, focusing on design and development of appropriate methods for different requirements. Sample pre-treatment methods are described and reviewed.

Topics include:

- Scopes of bio-analysis by LC-MS/MS methods
- Design and development of MRM-based quantitative method for biological samples
- Pre-treatment of biological samples for LC/MS/MS analysis
- Procedure of method validation

Prerequisites

Attended LCMS-A102N

Fees

S\$ 1300 per participant (excl. GST)

QuEChERS Sample Pretreatment and LC/MS/MS Method for Food safety Analyses

Duration: 2 days

Course Code: LCMS-B202



An advanced course designed for LC-MS/MS users to develop MRM-based method for quantitative analysis of veterinary drugs in food samples. The course focuses on QuEChERS sample pretreatment procedure with hands-on lab

session for food samples, followed by MRM method analysis.

Topics include:

- Procedure of QuEChERS sample pretreatment
- Hands on session for pretreatment of food samples
- MRM-based quantitative method for veterinary drug samples for LC/MS/MS analysis
- Evaluation of matrix effect and recovery

Prerequisites

Attended LCMS-A102N

Fees

S\$ 1300 per participant (excl. GST)

Multi-Omics Analysis s/w Suite and Applications for Metabolomics

Duration: 2 days

Course code: LCMS-B104



This advanced course module is for the introduction and learning of Shimadzu Multi-omics analysis s/w package. In addition, the course will cover the fundamentals of metabolomics, targeted and

un-targeted LC-MS workflows.

Topics include:

- 1) Fundamentals of metabolomics
- 2) Introduction to Shimadzu Multi-omics analysis s/w package
 - Multi-omics Workflow/Operation
 - Volcano Plot Generator
 - MultiVariate Analysis using EasyStats
 - Correlation Coefficient Calculator & Cytoscape

Prerequisites

Participant has attended LCMS-A102N or LCMS-A105

Fees

S\$ 1300 per participant (excl. GST)

Course Module — LCMS & LCMSMS

Code	Course Module	Days	S\$/Pax
LCMS-A101	Principles, Operation and Maintenance of	2	1,300
LCMS-A101B	Principles, Operation and Maintenance of LCMS-2050 with LabSolutions	2	1,300
LCMS-A102N	Principles, Operation and Maintenance of Triple Quadrupole with LabSolutions for LCMS-8045/8050/8060NX	2	1,300
LCMS-A103	LabSolutions Insight for multi-data quantitative analysis	1	650
LCMS-A105	Principles, Operation and Maintenance of LCMS-9030/9050 – HRAM & MS/MS Applications	3	1,950
LCMS-A106	LabSolutions Insight Explore for Untargeted Screening DIA/DDA	1	650
LCMS-A203	LC-MS Co-Sense for on-line SPE Automated Sample Pre-treatment and Analysis	2.5	1,625
LCMS-A204	Principles and Applications of Direct Probe Ionization Mass Spectrometer (DPIIMS)	1	650
LCMS-A205	Principles, Instrumentation and Applications of SFC-MS/MS	2	1,300
LCMS-B102	Method Development of LC/MS/MS for Quantitative and Qualitative Analyses	2	1,300
LCMS-B103	Targeted Screening for Pesticide with method package	2	1,300
LCMS-A107	HRAM library for identification of toxicological compounds	1	650
LCMS-B201	Quantitative Bioanalysis of Drugs – Method development and Validation	2	1,300
LCMS-B202	QuEChERS Sample Pretreatment and LC/MS/MS Method for Food safety	2	1,300
LCMS-B104	Multi-Omics Analysis s/w Suite and Applications for Metabolomics	2	1,300

Course fee excluded GST

Principles and Operation of AXIMA MALDI-TOF with Launchpad Workstation

Duration: 2 days

Course Code: MALDI-A101



A dedicated course for users of AXIMA MALDI-TOF series to understand the sophisticated systems and learn the operation skills.

Topics include:

Principles and techniques of MALDI-TOF
Operation of AXIMA MALDI-TOF series using LaunchPad Workstation
Sample preparation methods
System maintenance and troubleshooting

Prerequisites

MS and biochemistry knowledge

Fees

S\$ 1300 per participant (excl. GST)

Principles and Operation of MALDI-8020/8030 with MALDI Solutions

Duration: 2 days

Course Code: MALDI-A103



A comprehensive course for users of benchtop models MALDI-8020 / 8030 to learn the principles, operation and analytical skills for proteins, peptides and other molecules.

Topics include:

Principles and techniques of MALDI-TOF
Operation of MALDI-8020 / 8030 using MALDI Solutions
Matrix selection and sample preparation on sample target
Standards and mass calibration
Protein ID by PMF (Mascot and database search)

Prerequisites

MS and biochemistry knowledge

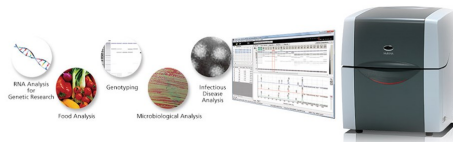
Fees

S\$ 1300 per participant (excl. GST)

Principles and Operation of Microchip Electrophoresis for DNA/RNA Sizing

Duration: 2 days

Course Code: MultiNA-A101



A dedicated course for microchip electrophoresis (MCE) users to understand the principles of DNA/RNA sizing analysis using MCE and learn the basic operation skills, technique and various applications in bio and clinical fields.

Topics include:

Principles of microchip electrophoresis for DNA/RNA sizing analysis
MultiNA data analysis software and operation
Maintenance and basic troubleshooting

Prerequisites

DNA/RNA electrophoresis and molecular biology

Fees

S\$ 1300 per participant (excl. GST)

N-terminal protein sequencing based on Edman degradation chemistry

Duration: 2.5 days

Course Code: PPSQ-A101



A dedicated course for PPSQ-51/53 users to understand the principles of protein sequencing based on Edman degradation method and learn the operation skills and applications.

Topics include:

Principles and technique of protein chemistry and Edman sequencing method
Operation of PPSQ to determine peptide sequence
Sample Preparation
System maintenance and troubleshooting

Prerequisites

HPLC and biochemistry

Fees

S\$ 1625 per participant (excl. GST)

mAb Characterization - peptide mapping with trypsin digestion on LCMS-9050

Duration: 3 days

Course Code: LCMS-B301



Peptide mapping is a basic technique for examining mAb primary structure (amino acid sequences and modification). This advanced module introduces the principles and

LC-MS method for peptide mapping of mAb on LCMS-9050.

Topics include:

Principle of peptide mapping by targeted proteomics approach
Detection of digested peptide of full amino acid sequence
Sample preparation procedure and hand-on practice
Q-TOF method for digested mAb and data analysis

Prerequisites

Attended LCMS-A105

Fees

S\$ 1950 per participant (excl. GST)

Course Module — Life Sci & Biopharma

Code	Course Module	Days	S\$/Pax
MALDI-A101	Principles and Operation of AXIMA MALDI-TOF with Launchpad Workstation	2	1,300
MALDI-A103	Principles and Operation of MALDI-8020/8030 with MALDI Solutions Workstation	2	1,300
MALDI-A201	SARAMIS and SuperSpectrum Database for Microbial Identification	1.5	975
MALTINA-A101	Principles and Operation of Microchip Electrophoresis for DNA/RNA Sizing Analysis	2	1,300
PPSQ-A101	N-terminal Protein Sequencing based on Edman Degradation Chemistry	2.5	1,625
HPLC-B202	mAb characterization - peptide mapping with trypsin digestion by UHPLC	2	1,300
HPLC-B203	mAb characterization - N-glycan profiling analysis with EZGlycoTM mAb-N kit	2	1,300
HPLC-B204	mAb characterization- size exclusion chromatography (SEC) for aggregate analysis	1	650
HPLC-B205	mAb characterization - ion exchange chromatography (IEX) for charge variants analysis	2	1,300
LCMS-B301	mAb characterization- peptide mapping with trypsin digestion on LCMS-9050	3	1,950
LCMS-B302	mAb characterization - disulfide bond analysis on LCMS-9050	3	1,950

Course fee before GST

GC / GCMS Training Courses



Principle, Operation and Maintenance of GC-FID with Labsolutions

Duration: 2 days

Course Code: GC-A101



An introductory course on Gas Chromatography (GC), this course offers practical knowledge to familiarize users with the operation and general maintenance of Shimadzu GC.

Topics include:

Principles and instrumentation of GC
Operation of GC with LabSolutions software (system and parameters setup, data acquisition)
Data processing via LabSolutions software (data analysis, reporting)
Basic maintenance of GC

Prerequisites

None

Note: During registration, please indicate the GC model that you are using.

Fees

S\$ 1300 per participant (excl. GST)

GC Method Development and Optimization

Duration: 1 day

Course Code: GC-B101



This course on Gas Chromatograph (GC) is targeted for those who wish to obtain a deeper understanding of GC parameters and apply them in developing methods.

Topics include:

Goal of analysis and tips of sample preparation
Selection of injector, injection techniques, column and detectors
Method development and GC analysis parameters optimization

Prerequisites

Fundamental knowledge of GC and analytical chemistry are required.

Fees

S\$ 650 per participant (excl. GST)

Principles, Operation and Maintenance of GC-MS with LabSolutions

Duration: 2 days

Course Code: GCMS-A101



An introductory course on Gas Chromatography Mass Spectrometry (GC-MS), this course offers practical knowledge to familiarize users with the operation and maintenance of Shimadzu GC-MS systems.

Topics include:

Principles and instrumentation of GC-MS
Operation of GCMS series with Labsolutions software (system and parameter setup, data acquisition)
Data processing via Labsolutions software (data analysis, reporting)
GC-MS maintenance and troubleshooting

Prerequisites

Fundamental knowledge of GC and analytical chemistry are required.

Fees

S\$ 1300 per participant (excl. GST)

LabSolutions Insight for GC-MS and GC-MS/MS Data Processing

Duration: 1 day

Course Code: GCMS-A106



This course is targeted to GC-MS and GC-MS/MS users who wish to perform data processing and examine results from multiple data concurrently using LabSolutions Insight.

Topics include:

- Overview of the LabSolutions Insight functions
- Screening of quantitative results of multiple data concurrently
- Auto and manual peak integrations
- Auto average of retention times and ion ratios from multiple data
- Flag function to establish upper and lower limits with colors
- Generation of report

Prerequisites

Proficiency in GCMSsolution data processing is a must

Fees

S\$ 650 per participant (excl. GST)

Principles and Operation of GC-MS/MS with GCMSsolution

Duration: 2 days

Course Code: GCMS-A111



An introductory course on GC-MS/MS, this course offers practical knowledge to familiarize users with the operation of Shimadzu GC-MS/MS system

Topics include:

- Principles and instrumentation of GC-MS/MS
- Operation of GC-MS/MS with GCMSsolution software (system and parameter setup, data acquisition)
- Data processing via GCMSsolution software (data analysis, reporting)

Prerequisites

Participants must be equipped with fundamental GC-MS, analytical chemistry knowledge and be familiar with Shimadzu GC-MS operation

Fees

S\$ 1300 per participant (excl. GST)

Courses Module– GC

Code	Course Module	Days	S\$/Pax
GC-A101	Principles, Operation and Maintenance of GC-FID with LabSolutions GC Workstation	2	1,300
GC-B101	GC Method Development and Optimization	1	650
GC-A102	Operation of Thermal Conductivity Detector (TCD-2030)	0.5	325
GC-A103	Operation of Electron Capture Detector (ECD-2010 Exceed)	0.5	325
GC-A104	Operation of Flame Photometric Detector (FPD-2030)	0.5	325
GC-A105	Operation of Flame Thermionic Detector (FTD-2030)	0.5	325
GC-A106	Operation of Barrier Discharge Ionization Detector (BID-2010 Plus)	0.5	325
GC-A201	Advance Flow Technology Module - Operation of Backflush System with AFT software	1	650
GCA-211	Principles and Operation of HS-20 NX Static Headspace with LabSolutions Control Software	1	650
GCA-212	Principles and Operation of HS-20 NX Dynamic Headspace with LabSolutions Control Software	1	650
GC-A331	Operation of HT2800T Sampler for Liquid and Headspace Injection Modes	1	650
GC-A332	Operation of HT2800T Sampler for SPME Injection Modes	1	650

Course fee before GST

Courses Module– GCMS & GCMSMS

Code	Course Module	Days	S\$/Pax
GCMS-A101	Principles, Operation and Maintenance of GC-MS with GCMSsolution Workstation	2	1300
GCMS-A106	LabSolutions Insight for GC-MS and GC-MS/MS Data Processing	1	650
GCMS-A111	Principles and Operation of GC-MS/MS with GCMSsolution Workstation	2	1300
GCMS-A103	Principles and Operation of Positive Chemical Ionization (PCI)	0.5	325
GCMS-A104	Principles and Operation of Negative Chemical Ionization (NCI)	0.5	325
GCMS-A105	Principles and Operation of Smart EI/CI (Quick Chemical Ionization)	0.5	325
GCMS-A107	Principles and Operation of Solvent Mediated Chemical Ionization (SMCI)	0.5	325
GCMS-A201	Advance Flow Technology Module - Operation of Backflush System with AFT software	1	650
GCMS-A221	Principles and Operation of TD-30/30R Thermal Desorption System with GCMSsolution TD Add-in software	2	1300
GCMS-A251	Operation of AOC-6000 Plus Sampler for Liquid and Headspace Injection Modes with AOC-6000 Control Software	1	650
GCMSA-252	Operation of AOC-6000 Plus Sampler for SPME Injection Mode with AOC-6000 Control Software	1	650
GCMSA-311	Principles and Operation of EGA/PY-3030D Pyrolyzer and AS-1020E Auto-Shot Sampler	2	1300
GCMS-B101	Advanced GC-MS Operation for Qualitative Analysis	1	650

Spectroscopy Training Courses



Principles and Operation of UV-VIS Spectroscopy for UV-1900i/2600i with LabSolutions UV-Vis

Duration: 1 day

Course Code: UV-A101



This course is designed for beginners in Ultra-Violet and Visible Spectroscopy (UV-Vis). There would be practical sessions on the operation of UV-1900i/2600i with LabSolutions UV-Vis.

Topics include:

- Theory and principles of UV-Vis
- Instrumentation of UV-Vis
- Practical sessions for UV-Vis
- Basic maintenance for UV-Vis

Prerequisites

None

Fees

S\$ 650 per participant (excl. GST)

Principles and Operation of FTIR for IRTracer-100 / IRXross / IRAffinity-1S/ IRSpirit with LabSolutions IR

Duration: 1 day

Course Code: FTIR-A101



This course is designed for beginners in Fourier Transform Infrared Spectroscopy (FTIR). There would be practical sessions on the operation of IRTracer-100/ IRXross / IRAffinity-1S/ IRSpirit with LabSolutions IR software.

Topics include:

Theory and principles of FTIR
Introduction to the instrumentation of FTIR
Practical sessions for FTIR and accessories
Basic maintenance for FTIR

Prerequisites

None

Fees

S\$ 650 per participant (excl. GST)

Principles and Operation of FTIR Microscope for AIM-9000

Duration: 1 day

Course Code: FTIR-A102



This course is designed to enhance the skill of user in FTIR Microscope Analysis .

Topics include:

Instrumentation and application of FTIR Microscope
Operation of FTIR Microscope with AIMsolution software
Practical sessions for FTIR Microscope and accessories

Prerequisites

Participants should know some basic operation knowledge of Shimadzu FTIR or should attend "Principles and Operation of FTIR (Course code: FTIR-A101)" before this course

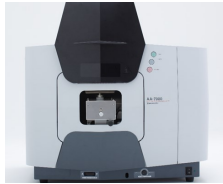
Fees

S\$ 650 per participant (excl. GST)

Principles and Operation of AA-7000 Flame Atomic Absorption Spectroscopy

Duration: 2 days

Course Code: AA-A101



This course is designed for beginners in Flame Atomic Absorption Spectroscopy (AAS) where the basic concepts of flame AAS would be introduced. There would also be practical sessions on the operation of AA-7000F.

Topics include:

- Theory and principles of flame AAS
- Instrumentation of AA-7000 flame
- Features and Operation of AA-7000 flame
- Practical sessions for AA-7000 flame
- Basic maintenance for AA-7000 flame

Prerequisites

Participants should have some basic operation knowledge of Shimadzu AAS.

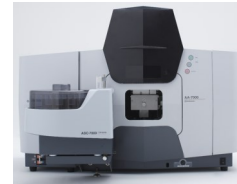
Fees

S\$ 1300 per participant (excl. GST)

Principles and Operation of AA-7000 Graphite Furnace Atomic Absorption Spectroscopy

Duration: 1 day

Course Code: AA-A102



This course is designed for beginners in Graphite Furnace Atomic Absorption Spectroscopy (GFAAS). There would be practical sessions on the operation of GFA-7000.

Topics include:

- Theory and principles of GFAAS
- Instrumentation of GFA-7000
- Features and Operation of GFA-7000
- Practical sessions for GFA-7000
- Basic maintenance for GFA-7000

Prerequisites

Participants should have some basic operation knowledge of Shimadzu AAS.

Fees

S\$ 650 per participant (excl. GST)

Principles and Operation of Inductively Coupled Plasma for ICPE-9800 Series

Duration: 2 days

Course Code: ICP-A101



This course is designed for beginners in Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES/ICP-OES) where the basic concepts of ICP would be introduced. There would also be practical sessions on the operation of ICPE-9800 Series.

Topics include:

- Theory and principles of ICP-AES (ICP-OES)
- Instrumentation of ICPE-9800 Series
- Practical sessions for ICPE-9800 Series
- Basic maintenance for ICPE-9800 Series

Prerequisites

None

Fees

S\$ 1300 per participant (excl. GST)

Principles and Operation of Inductively Coupled Plasma Mass Spectrometry for ICPMS-2030

Duration: 3 days

Course Code: ICPMS-A101



This course is designed for beginners in Inductively Coupled Plasma Mass Spectrometry. There would be practical sessions on the operation and basic maintenance of ICPMS-2030.

Topics include:

- Theory and principle of ICP-MS
- Comparison of ICP-MS with other elemental analysis techniques
- Instrumentation of ICPMS-2030
- Operation of ICPMS-2030 with LabSolutions ICPMS software
- Qualitative and quantitative analysis using ICPMS-2030
- Basic maintenance for ICPMS-2030

Prerequisites

Participants must have purchased the ICPMS-2030.

Fees

S\$ 1950 per participant (excl. GST)

Principles and Operation of SALD-2300 with WingSALD II

Duration: 1 day

Course Code: SALD-A101



This course is designed for beginners in Laser Diffraction Particle Size Analyzer. There would be practical sessions on the operation of SALD-2300.

Topics include:

- Theory and principles of laser diffraction particle size analysis
- Introduction to the instrumentation of SALD-2300
- Practical sessions for SALD-2300
- Basic maintenance for SALD-2300

Prerequisites

None

Fees

S\$ 650 per participant (excl. GST)

Principles and Operation (Software) of TOC-L Series Total Organic Carbon Analyzer

Duration: 2 days

Course Code: TOC-A101



This course is designed for beginners in Total Organic Carbon Analyzer (TOC) where the basic concepts of TOC would be introduced. There would be also practical sessions on the operation (software) of TOC-L Series.

Topics include:

- Theory and principles of TOC
- Instrumentation of TOC-L Series
- Features and Operation of TOC-L Series
- Practical sessions for TOC-L Series
- Basic maintenance for TOC-L Series

Prerequisites

None

Fees

S\$ 1300 per participant (excl. GST)

Principles and Operation of DSC-60 Plus Differential Scanning Calorimeter

Duration: 1 day

Course Code: TA-A101



This course is designed for beginners in Differential Scanning Calorimeter (DSC). There would be practical sessions on the operation of DSC-60 Plus.

Topics include:

- Theory and principles of DSC
- Instrumentation of DSC-60 Plus
- Features and Operation of DSC-60 Plus
- Practical sessions for DSC-60 Plus
- Basic maintenance for DSC-60 Plus

Prerequisites

None

Fees

S\$ 650 per participant (excl. GST)

Principles and Operation of DTG-60 Simultaneous DTA-TGA

Duration: 1 day

Course Code: TA-A102



This course is designed for beginners in Simultaneous DTA-TGA where the basic concepts of Simultaneous DTA-TGA would be introduced. There would be also practical sessions on the operation of DTG-60.

Topics include:

- Theory and principles of Simultaneous DTA-TGA
- Instrumentation of DTA-60
- Features and Operation of DTA-60
- Practical sessions for DTA-60
- Basic maintenance for DTA-60

Prerequisites

None

Fees

S\$ 650 per participant (excl. GST)

Course Module - Spectro

Code	Course Module	Days	S\$/Pax	Code	Course Module	Days	S\$/Pax
UV-A101	Principles and Operation of UV-VIS Spectroscopy for UV-1900i/2600i with LabSolutions UV-Vis	1	650	ICP-B101	Organic Solvent Analysis with Inductively Coupled Plasma (ICP-AES/ICP-OES) for ICPE-9800 Series	1	650
UV-A102	Principles and Operation of UV-VIS Spectroscopy for UV-1280/UV-1780	0.5	325	ICPMS-A101	Principles and Operation of Inductively Coupled Plasma Mass Spectrometry for ICPMS-2030	3	1950
FTIR-A101	Principles and Operation of FTIR for IRTracer-100 / IRXross / IRAffinity-1S / IRSpirit with LabSolutions IR	1	650	SALD-A101	Principles and Operation of SALD-2300 with WingSALD II	1	650
FTIR-A102	Principles and Operation of FTIR Microscope for AIM-9000	1	650	TOC-A101	Principles and Operation of TOC-L-Series Total Organic Carbon Analyzer with LabSolutions TOC	2	1300
RF-A101	Principles and Operation of Fluorescence Spectroscopy for RF-6000	0.5	325	TOC-A102	TOC-A102 Principles & Operation (Standalone) of TOC-L Series Total Organic Carbon Analyzer	2	1300
AA-A101	Principles and Operation of AA-7000 Flame Atomic Absorption Spectroscopy	2	1300	TOC-A103	Principles and Operation of TOC-VWP Total Organic Carbon Analyzer	2	1300
AA-A102	Principles and Operation of AA-7000 Graphite Furnace Atomic Absorption Spectroscopy	1	650	TOC-A201	Principles and Operation (Standalone) of SSM-5000A Solid Sample Module with TOC-L Series	1	650
AA-A103	Principles and Operation of AA-7800 Flame Atomic Absorption Spectroscopy	2	1300	TOC-A202	Principles and Operation of SSM-5000A Solid Sample Module with TOC-L Series with LabSolutions TOC	1	650
AA-A201	Principles and Operation of HVG- 1 Hydride Vapour Generation Technique with AA-7000/AA-7800	1	650	TA-A101	Principles and Operation of DSC-60 Plus Differential Scanning Calorimeter	1	650
AA-A202	Principles and Operation of MVU- 1 Cold Vapour Technique with AA-7000/AA-7800	1	650	TA-A102	Principles and Operation of DTG-60 Simultaneous DTA-TGA	1	650
ICP-A101	Principles and Operation of Inductively Coupled Plasma for ICPE-9800 Series	2	1300	TA-A103	Principles and Operation of TMA-60 Thermomechanical Analyzer	1	650
ICP-A201	Principles and Operation of Hydride Generation with Inductively Coupled Plasma (HVG-ICP) for ICPE-9800 series	1	650				

Course fee before GST

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Course Module — e-Learning

Code	Course Module	Hours	S\$/Pax
eGC-001	Principle, Operation, And Maintenance of Nexis GC-2030 (With FID)	10	400
eGCMS-001	Principle, Operation, and Maintenance of GCMS-QP2020 NX	10	500
eLC-001	Principle, Operation, and Maintenance of Advanced i-Series HPLC	10	400
eLCMS-001	Principle, Operation, and Maintenance of TQ LCMS-80XX Series	10	500
eLCMS-002	LabSolutions Insight – The Multi-Analyte Quantitation Software for LCMS-80xx Series	4	400
eRF-001	Principle, Operation, and Maintenance of RF-6000 Fluorescence Spectrometer	4	400
eTOC-001	Principle, Operation, and Maintenance of TOC-L series	8	400



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Principle, Operation, and Maintenance of Nexis GC-2030 (With FID)



Course Code: eGC-001



This e-Learning course offers practical knowledge to familiarize users with the operation and general maintenance of Shimadzu Nexis GC-2030.

Author: Shimadzu CAS Level: Beginner Study time: 10 hours
 Video time: 5 hours Exams: Yes Certification: Yes

Learning Topics

Principle & instrumentation of Gas Chromatography
General column selection and method optimization
Data acquisition via LabSolutions software
Qualitative and quantitative GC analysis
Troubleshooting of common issues in GC analysis
Basic GC maintenances

Fees

S\$ 400 per participant (excl. GST)



Principle, Operation, and Maintenance of TQ LCMS-80XX Series



Course Code: eLCMS-001



This e-Learning course offers practical knowledge to familiarize users with operation and general maintenance of Shimadzu Triple Quadrupole LCMS-80XX Series.

Author: Shimadzu CAS Level: Beginner Study time: 10 hours
 Video time: 5 hours Exams: Yes Certification: Yes

Learning Topics

Principles and instrumentation of LC-MS/MS
Basic operation and data acquisition via LabSolutions software
Setup of Full Scan and MRM Optimization for LCMS analysis
Qualitative and quantitative analysis using LabSolutions software
Troubleshooting of common issues in LCMS analysis
Basic LCMS periodic and preventive maintenance

Fees

S\$ 500 per participant (excl. GST)



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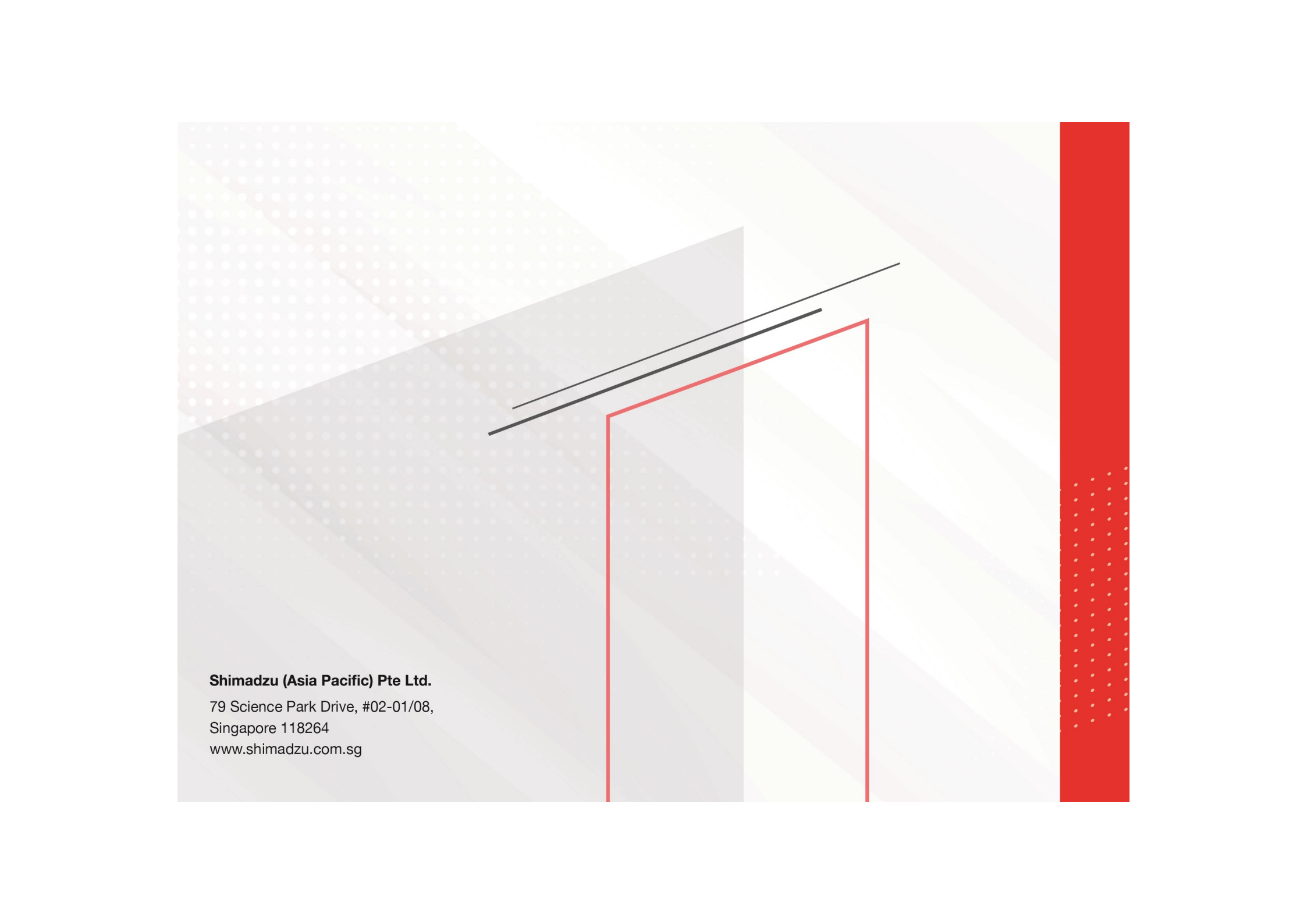
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YouTube Channel

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