



Since 2002

SANJARY EDUCATIONAL ACADEMY®

Society Registered, No. 347 / 08, Government of Telangana

Registered with Ministry of Commerce & Industry, Directorate General of Foreign Trade, Govt. of India.

Registered with Ministry of Micro, Small & Medium Enterprises, Government of India,

Member of Indo-American Chamber of Commerce (IACC)

Member of Federation of Telangana and Andhra Pradesh Chambers of Commerce and Industries (FTAPCCI)

ISO 9001 : 2015 Certified

Head Officer : S.NO. 24 & 25 , 3rd Floor , SANALI MALL , above Mcdonalds , Opp. Chermas Show room , Abid ,
Hyderabad , Telangana , India . phone :+91- 40- 65268809 / 9985715560

Register Office : 20 – 3 – 144 / 9 , Shibli Gunj , Hyderabad , Telangana , India

TRAINING AND CERTIFICATION TO ENGINEERS / INDIVIDUALS

M/s Sanjary Educational Academy is developing skill in Piping Design and certifying Piping Design Engineer more than DECADE

All certification courses including Piping Design Engineer which is Design & Developed by Sanjary Educational Academy in line with International Standards ,Industrial job , Sanjary (SEA) Norms etc.

All Piping Design Engineer courses cover the comprehensive competency and developing skills aspect of the Piping Design & Engineering which allows to adapt to study of Piping Design Software

Each year thousands of professional Engineers / Individuals enroll in the piping design engineer courses offered by Sanjary Educational Academy .This is one of the most widely recognized and accepted qualification in the industry world wide.

Sanjary Educational Academy has Completed Over 100 + Batches of Piping Design Engineer , Professionals Certification Courses form 2008 to December 2017.

International Certificate – Certificate is Recognized International in more than 30 Countries

Certification Course

- ***P G DIPLOMA IN PROCESS PIPING DESIGN AND ENGINEERING***

Eligibility Criteria : **Mechanical Engineer , Chemical Engineer & Petroleum Engineer**

Duration of Course : **2 Months**

Theory :- **Basic ,**
- **Piping Design**
- **Process Engineering**
- **Piping Engineering ,**
- **Layout Engineering**
- **Pipe Stress Analysis etc. ,**

Software : **- Study of CEASAR II**
- Study of PDMS

Course Fee : **Rs 37000/- Hyderabad , India**

Course Fee for Foreign Students : **US Dollar \$ 1400/- Hyderabad , India**

Daily Classes : **First 15 Days : 2 hrs / day**
Second 15 days : 3 hrs / day
Third , Fourth , 15 days : 5 hrs / day

Venue : **SANJARY EDUCATIONAL ACADEMY ,**
HEAD OFFICE: 5-9-233 / 234 , S. No. 24 & 25 , 3rd Floor, SANALI
MALL Opposite Chermas Showroom , Abids , Hyderabad -
500001, Telangana , India

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Duration of Course	: 45 Days - USA , Saudi Arabia , Dubai , Qatar
Course Fee	: US Dollar \$ 1400/ -USA , Saudi Arabia , Dubai , Qatar
Daily Classes	: Three Hours Per Day
Maximum No. of Seats / students in a Batch	: 15 only

Overview:

This comprehensive course which provides a systematic development of skills and knowledge of Piping Design Engineer in line with international standards including ASME B31.1 , ASME B31.3, Industrial job and Sanjary (SEA) Norms etc.

This certification course is design and developed by Sanjary Educational Academy. A comprehensive course covering in depth the design of various pressure piping systems including Basic , Piping Design , Piping Engineering , Piping Layout Pipe Stress Analysis ,detailed design and engineering etc. Study of PDMS, CEASAR II ,AutoCad and Project submission.

This course also provides design projects per ASME B 31. This course is more concentrated on manual design calculation of piping sizing, pressure integrity , pipe stress analysis , pipe support ,pump calculation and as well as study of CAESAR II , PDMS and AutoCad including piping isometric ,process flow diagram (PFD) ,piping &instrumentation diagram (P&ID), equipment layout ,piping arrangement , selection of material etc. and Submission of Piping Design Project Report as per ASME B31.

This course in directed primarily to meet the needs of various industries, Engineering Consultants / EPC ,Manufacturing Industries and Govt. & private social sectors including Oil & Gas, Petrochemical, Refinery, Power Plant, Pharmaceutical, Textiles Industries and Waste Water Treatment Plant and any type and size of organization. Candidates shall meet the following examination requirements to be considered for certification as

Course Syllabus :

PART - 1

- **PIPING SYSTEMS DETAILED ENGINEERING**
- **LAYOUT OF PIPING SYSTEMS & PIPING DRAFTING**
- **MECHANICAL AND PROCESS EQUIPMENT**

Module – 1 Fundamentals of piping

Module – 2 ASME codes and standards

Module – 3 Classification of pipe

Module – 4 Piping Material Specifications – ASME / ASTM

Module – 5 Calculation of standards property of piping materials

Module – 6 Pipe Fittings

Module – 7 Types of Flanges

Module – 8 Types of Valves

Module – 9 Mechanical and Process Equipment

Module –10 Flow Diagrams

Module – 11 Piping Isometric

Module – 12 Piping and Equipment Layout

Module – 13 Pipe Supports

PART - 2



PIPING SYSTEMS DESIGN

Module – 14 Design of process piping requirements per ASME B31.3

Module – 15 Design pressure integrity

**Module – 16 Typical wall thickness calculation for Oil and Gas , Petrochemical ,
Refineries (eg. Saudi Aramco)**

Module – 17 Hydraulic Design of Piping Systems

Module – 18 Design Calculations of Piping sizing

Module – 19 Pump Calculations

PART - 3



PIPE STRESS ANALYSIS

Module – 20 Introduction

**Module – 21 Stresses due to Sustained Loads , Stresses due to Displacement
Strains and Stresses due to Occasional Loads**

Module – 22 Pipe Flexibility Analysis per ASME B31.3

**Module – 23 Design Calculation of Pipe Stresses by Thermal Expansion Stress /
Sustained Loads**

Module – 24 Design Calculations of Occasional Loads

**Module – 25 Design Calculations of Wind Load on a Piping Support in Open
Terrain**

Module – 26 Determination types of Pipe Support and Maximum Allowable Span

PART- 4

- **Study of CAESAR II**

PART- 5

- **Study of PDMS**

DETAILED COURSE SYLLABUS – OUTLINE

PART - 1

- **PIPING DESIGN SYSTEMS DETAILED ENGINEERING**
- **LAYOUT OF PIPING SYSTEMS & PIPING DRAFTING**
- **MECHANICAL AND PROCESS EQUIPMENT**

Module – 1 Fundamentals of piping

- Definition and Application of Piping
- Pipe Manufacturing
- Pipe Fabrication
- Pipe Designations

Module – 2 ASME codes and standards

- ASME Boiler and Pressure vessels Codes
- ASME Pressure Piping Design Codes.
- API Codes
- Other Codes & Standards

Module – 3 Classification of pipe

- Manufacturing Methods
- Weight and Size – Standards STD , Extra Strong XS , Double Extra Strong XXS etc.
- Applications or Uses
- Pressure Temperature Rating System

Module – 4 Piping Material Specifications – ASME / ASTM

- Ferrous Material Specifications
- Non Ferrous Material Specifications

Module – 5 Calculation of Standards Properties of Commercial Piping

Materials

- Several Examples of Calculation of Standards Properties of Commercial Piping Materials

Module – 6 Pipe Fittings

- Types of Fitting - Butt Weld , Threaded and Socket Weld
- _ Elbow – 90 degree (LR & SR), 45 degree, Reducing Ell. ,
- _ Branch Connections – Straight & Out let Tees
- Reducers – Concentric & Eccentric, Reducer Offsets.
- Fabricated Branch Connections – Stub In & Stub On,
- Branch Reinforcements – Reinforcing Pad, Welding Saddle Olets.
- _ Olet Fittings – Weldolets, Sockolets, Thredolets, Latrolets, Elbolets

Module – 7 Types of Flanges

- Definition of Flange.
- Types of Flanges based on Face and Application,-. Forged Steel and Cast Iron Flanges.
- Threaded Flanges , Slip-on Flanges, Socket-Welded Flanges , Welded-Neck Flanges , Blind Flanges
- Gaskets – Types, Thickness, Bolts & Nuts.

Module – 8 Types of Valves

- Definition & basic function
- Valve Types – Gate, Globe, Ball, Check, Butterfly, Angle, PRV/PSV, & Plug , Automatic Control , Needle , Diaphragm , Safety ”Pop
- Application of Check Valve
- Valve Storage Procedure
- Valve Testing
- Control Valve Manifold. – Layout Representation & Requirements.

Module – 9 Mechanical and Process Equipment

- Static Equipment – Horizontal Vessels, Vertical Vessels, Storage Tanks, Heat Exchanger , Reboiler., Towers and Columns
- Rotary Equipment – Pumps, Compressor, Fans, & Steam Turbines.

Module – 10 Flow Diagrams

- Process Flow Diagram – PFD
- Piping & Instrumentation Diagram – P & ID.
- Utility Flow Diagram
- Line Numbering
- P& ID Requirements
- Flow Diagram Exercises.
- Symbols & Abbreviations.

- Instrument Types & Symbols – Flow, Temp, and Pressure & Level.
- Flow Plan arrangement etc.

Module – 11 Piping Isometric

- Definition
- Drawing Piping Isometrics
- Isometric Dimensions, Notes & Callouts.
- Isometric Offsets.
- Exercises on Creation of Isometrics from Piping Plans and Sections.

Module – 12 Piping and Equipment Layout – (Plot Plan, Equipment Layout, & Piping GA Drawings)

- Plot Plan Development & Requirements.
- Equipment Layout Terminology, Control Point & Battery Limits
- Preparation of Equipment Layout.
- Piping GA Drawing Requirements and Layout Procedure.
- Pump GA Drawing and Layout Consideration.
- Tank & Vessel Layout Consideration .etc.

Module – 13 Pipe Supports

- Types and Functions of Supports
- Anchors
- Pipe Guides
- Limit Stops
- Pipe Shoe
- Dummy Leg / Trunion
- Field Support / Base Support
- Rigid Hangers
- Flexible or Resilient Supports - Variable & Constant Load
- Pipe Rack and Yard Piping Design

PART - 2

➤ PIPING SYSTEMS DESIGN AND CALCULATIONS

Module – 14 Design of process piping requirements per ASME B31.3

- Scope of ASME B 31.3, B31.1
- Design Pressure & Design Temperature for Piping Systems.
- Ratings of Flanges etc.
- Reinforcement of Branch Connection

Module – 15 Design pressure integrity

- Concept of Pressure Integrity
- Pressure Design of Straight Pipe under Internal Pressure. – Wall thickness Calculations

Module – 16 Typical wall thickness calculation for Oil and Gas , Petrochemical , Refineries (eg. Saudi Aramco)

- *Several Examples of wall thickness calculation for Oil and Gas , Petrochemical , Refineries (eg. Saudi Aramco)*

Module – 17 Hydraulic Design of Piping Systems

- Fluid Flow Sizing
- Pipe Sizing
- Recommended Velocities for Water and Steam Piping etc.
- Reynolds Number
- Types of Flow in Piping
- Pressure Drop due to Friction / viscosity
- Darcy Weisbach Equation
- Friction Factor
- Moody Diagram
- Minor Losses in Piping – Equivalent Length Method & Loss Coefficient Method

Module – 18 Design Calculations of Piping sizing

- *Several Examples of Calculation of Pipe Sizing*

Module – 19 Pump Calculations

- Head
- Section and Flooded Lift
- Velocity Head
- Total Dynamic Section Head , Total Dynamic Discharge Head , Total Systems Head
- Cavitation in Pumps
- NPSH Required & NPSH Available for Pumps.
- ***Several Examples of Design of Pump Calculations***

PART - 3

➤ PIPE STRESS ANALYSIS

Module – 20 Introduction

- Objectives & Definition of Stress Analysis
- Critical Line List
- Information Required for Stress Analysis
- Piping Loads – Static & Dynamic
- Requirements of ASME B 31.3 Code – Sustained Loads, Thermal Expansion & Occasional Loads.

Module – 21 Stresses due to Sustained Loads , Stresses due to Displacement Strains and Stresses due to Occasional Loads

- Longitudinal Stress,
- Longitudinal Stress from Pressure
- Longitudinal stress due to weight
- Allowable Displacement Stress range
- Basic Allowable Stress at maximum material temperature.

Module – 22 Pipe Flexibility Analysis per ASME B31.3

- Pipe Stress Analysis Logic
- Minimum Flexibility Requirements
- Stress Range Reduction Factor - f

- Piping Flexibility – General Consideration
- Stress Analysis Flexibility Requirements
- Stress Analyst's Function
- Scope of Code Requirements
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Module – 23 Design Calculation of Pipe Stresses by Thermal Expansion Stress / Sustained Loads

- Several Examples of Design Calculation of Pipe Stresses by Thermal Expansion Stress / Sustained Loads

Module – 24 Design Calculations of Occasional Loads

- *Several Examples of Design Calculation of Occasional Load*

Module – 25 Design Calculations of Wind Load on a Piping Support in Open Terrain

- Calculating Civil / Mechanical Load on Pipe Systems
- Hydrostatic Test Weight
- Wind Force
- Wind Shielding
- *Several Examples of Calculations of Wind Load on a Piping Support in Open Terrain*

Module – 26 Determination types of Pipe Support and Maximum Allowable Span

- Maximum Support Spacing Based on Weight , Deflection Criteria and Design Loads
- Suggested Pipe Support Spacing
- *Several Examples of Types of Support and Maximum Allowable Span*

PART- 4

- **Study of CAESAR II**

PART- 5

- **Study of PDMS**

NATIONAL & INTERNATIONAL AWARDS WINERS

SANJARY EDUATIONAL ACADEMY Awarded The Most Prestige's

“Indian Achievers Award for Quality Excellence”

, August 5 , 2010, New Delhi.

“Indira Gandhi Excellence Award for Education Excellence ”

December 21 , 2014 , New Delhi

“International Achievers Award for Education Excellence “

August 27 , 2010, Bangkok.

“BEST PERFORMANCE AWARD FOR EXCELLENCE IN SOCIAL & EDUCATION”

August 10, 2015, New Delhi, India

Mr. Mohammed Saleem – SEA President Awarded The Most Prestiges National Awards

“ RASHTRIYA GAURAV AWARD ”

October 1 , 2016 , New Delhi , India

“BHARAT JYOTI AWARD ”

January 7, 2006 , Hyderabad , India

“ BHARAT SHIKSHA RATAN AWARD ”

August 10 , 2015 , New Delhi , India

Sanjary's SEA certification is accepted and recognized by major National & International companies in the world including India , Saudi Arabia , UAE , Kuwait , Qatar , Bahrain , Oman , Jordan , Iraq , Iran , Yemen , Nigeria , Sudan , Libya , Turkey , Portugal, Cameroon, Vitenum , Congo & other countries. Our SEA certified Engineers are already working in the above said countries.

SEA has trained & certified more than 5000 Engineers & Individuals in last Seven (7) years in different engineering disciplines and various sectors which include Oil and Gas , Petrochemicals , Refineries , Power Plant , Aeronautics & Construction projects etc.

M/s Sanjary Educational Academy has organized various National & International Conferences and Seminars in India & Abroad on Piping Design and Engineering , QA / QC , Safety (HSE) , Welding Technology etc in the field of Oil and Gas , petrochemicals and power Plant Industries.

For any further details pls do not hesitate to contact us at

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Web : www.sanjaryacademy.in / www.sanjaryacademy.com / www.pipingdesigncourse.in

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Mobile : +91 – 9985715560 / 9704083839 / 8885309462

Email : info@sanjaryacademy.in / hyderabad@sanjaryacademy.in

FAQ'S

FREQUENTLY ASK QUESTIONS

Q 1. Is the Sanjary (SEA) certificate recognized International

YES ,

Certificate is recognized International in more than 30 countries

Sanjary (SEA) is one to certifying / qualifying – Certified Piping Design Engineer , Certified QA / QC Manager , Certified QA / QC Engineer – Civil , Mechanical , Piping , E & I , Certified Document Controller , Certified Welding Engineer , Certified Safety Engineer since more than 10 Years.

Q 2. Is the training & certification program is recognized State Govt. / Govt. of India / National / International Bodies / Organizations

YES

All Certification Courses offered by Sanjary (SEA) as per Sanjary Educational Academy requirements , Industrial Jobs requirements , International Codes & Standards requirements including SAUDI ARAMCO , ADNOC , ENOC , ONGC , KNPC , KOC , ,QPC , Reliance Petrochemicals etc.,

- Sanjary Educational Academy is a Society registered , Government of Telangana ,-
- Registered with Ministry of Commerce & Industry , Additional Director General of Foreign Trade , Government of India
- Registered with Ministry of Micro , Small , Medium Enterprises , (MSME) , Government of India
- Registered – Trade Marks Registry , Government of India
- Member of Indo – Arab Chamber of Commerce & Industries (IACCI)
- Member of Indo – American Chamber of Commerce (IACC)
- Member of Federation of Telangana and Andhra Pradesh Chambers of Commerce and Industries (FTAPCCI)
- ISO 9001: 2015 Certified Organization – Accredited with UKAS
- Sanjary's (SEA) Piping Design Engineer course recognized with SPED , USA , since 2013
- Sanjary (SEA) Awarded most prestiges NATIONAL & INTERNATIONAL AWARDS

Q 3. Is Sanjary Educational Academy is Brand

YES

Trade Marks Registry , etc.

Q 4. What are Industries / Sectors applicable for Jobs to Piping Design Engineer , QA / QC Engineers , Document Controller , Welding Engineer , Safety Engineer etc.

Oil and Gas , Petrochemicals , Refineries , Power Plant , Chemical , Pharmaceutical , Textiles , Waste Water Treatment Plant Industries / Sectors , Heavy Fabrication Industries , High Rise Building EPC Company & Construction Projects .etc.,in India and Abroad .

Q 5. Is Sanjary Educational Academy will Qualify / Certify to Engineers / Individuals after successful of Course and Examination

YES

Certification Criteria

Candidates / Engineer shall meet the following examination requirements to be considered for certification as Certified Piping Design Engineer , Certified QA / QC Manager , Certified QA / QC Engineer Civil , Mechanical , Piping , E & I , Certified QA Officer , Certified Document Controller , Certified Safety Engineer , Certified Welding Engineer respectively as applicable.

Part 1 Theory Examination

Part 2 Workshops / Assessments

Part 3 Oral Examination

Part 4 Submission of Project if applicable

Candidate / Engineer shall pass each part of the examination. Individual failing any part of the above examination must retest on particular part as applicable.

Candidate / Engineer must score minimum of 70 percent on each of the above examination to be eligible for the certificate and Qualification Card.

Q 6. Is Diploma / P G Diploma Certificate recognized State Govt / Govt. of India . / International organization

NO.

Diploma / P G Diploma Certificates is TRAINING / TUITION CERTIFICATE which is ISSUED BY ALL INSTITUTE in Hyderabad and India Except Certificate Issue BY authorized UNIVERSITIES / POLYTECHNIC DIPLOMA , STATE BOARD.

Note : Some Institute issued certificate like : - QA / QC Civil , QA/QC Mechanical , QA / QC Piping , QA/QC E & I , or Diploma in QA /QC , Diploma in Piping Design & Engineering etc. which is TRAINING CERTIFICATE ONLY , NOT AUTHORIZED QUALIFYING CERTIFICATE

Q 7. Is Sanjary Educational Academy is Faculties / Trainers are qualified and having industry experience

YES

Well qualified having more than 20 years of Industrially experienced and gives immense knowledge courage to grasp various levels of course modules and practical sessions / workshops

. Faculties / Trainers Awarded the India's most prestiges NATIONAL AWARDS

- 1. Bharat Jyoti Award - (2006)**
- 2. Bharat Shiksha Ratan Award - (2015)**
- 3. Rashtriya Gaurav Award - (2016)**

Q 8. Is providing DEMO CLASSES to engineers / students prior to Admission of course

NO

Successfully completed the Certification courses and Qualifying / Certifying more than 5000 Five Thousand Engineers / Individual last Seven years & completed the Batches till Nov.2017 as below

- | | |
|------------------------------------|-----------------------|
| 1. Piping Design Engineer | more than 110 batches |
| 2. QA/QC Engineer | more than 170 batches |
| 3. Document Controller | more than 220 batches |
| 4. Welding Engineer | more than 80 batches |
| 5. Safety Engineer | more than 70 batches |
| 6. Internal Auditor QMS | more than 80 batches |
| 7. Pressure Vessel Design Engineer | more than 70 batches |

Q 9. Is Sanjary (SEA) providing Placement / Job

Placement Assistance when ever any job requirements from company / client in India / Abroad

Q 10. Does Sanjary (SEA) provides course materials during the course

YES

Course Manual , Case Study Material , Project Sample if required including Specification , Standard Forms / Templates , Tables etc.

Q 11. How many no's of Seats are available for Training & Certification Courses

15 No's

16

Q 12. How I can Registered for the Certification Course

Online Registration at our website www.sanjaryacademy.in or Call on +91 40 65268809 / 66440868 , Mobile +91 9704083839

Q 13. What is the course Fee

Please visit our website sites & click on Course Schedule which is already provided course Fee or Call on +91 40 65268809 / 66440868 , Mobile +91 9704083839

Q 14. Can I pay the fee in installments

YES , Two installments

First Installments on Admission : 50 % course fee compulsory

Second installment Next 10 / 15 days as advise on admission.

Q 15. What are documents requires for Admission of certification course

1. 5 Nos of Passport Size Photograph
2. Xerox copy of Qualification or Mark Sheet
3. First Installments on Admission : 50 % course fee compulsory

Q 16. How is the infrastructure of Sanjary Educational Academy

Sanjary (SEA) has build with very high level of infrastructure in accordance with International Standards .

Q 17. Does Sanjary Educational Academy have any branches in other cities in India

NO

Q 18. What is Eligibility Criteria for Certified Piping Design Engineer Course

B.Tech. / Polytechnic Diploma in Mechanical Engineer , Chemical Engineer , Petroleum Engineer

Q 19. What are duration of Certified Piping Design and Engineering Course and Course Fee

Duration :3 months , Course Fee : INR 45000/- Foreign Students : USD -\$ 1600/-

Duration :2 months , Course Fee : INR 37000/- Foreign Students : USD -\$ 1400/-

Duration : 45 Days , Course Fee : INR 28000/- Foreign Students : USD -\$ 1000/-

Q 20. What are the Timings for Piping Design and Engineering Courses

Daily Timings : First 15 Days - 11:00 AM - 01:00 PM

Second 15 Days - 11:00 AM - 02:00 PM

Third , Fourth11:00 AM - 05:00 PM

(Monday to Saturday)

Q 21. What are topics covered in Piping Design and Engineering courses

COURSE COVER UP :

- Basic
- Piping Design
- Process Engineering
- Piping Engineering
- Layout Engineering
- Pipe Stress Analysis
- projects

STUDY OF PIPING DESIGN SOFTWARES & SUBMISSION OF PROJECT

Q 22. Why Sanjary have less course fee for Piping Design and Engineering courses

Sanjary (SEA) have kept purposely less course fee to facilities Engineer to learn higher level of Piping Design Professional with excellent quality of training and qualifying to get easy Job in India & Abroad.

Q 23. Is Sanjary Educational Academy is Faculties / Trainers are qualified and having industry experience Piping Design & Engineering

YES

Well qualified having more than 20 years of Industrially experienced .

Faculties / Trainers Awarded the India's most prestiges NATIONAL AWARDS

Q 24. How Sanjary (SEA) Faculties / Trainers are teaching to Piping design & Engineering course

Teaching of Sanjary (SEA) faculties / Trainer who teach to Piping Design Engineer in such way that excellent quality training / education with close interaction with each Engineers / Students , the total course structure is to make to be good piping design engineer including BAISC TO THE CORE VALUES OF THE PIPING DESIGN PERFESSIONAL , PRACTICAL SESSIONS , CASE STUDIES , PROJECTS , SOFTWARES , DURATION CAN PROLONGED UNTIL BECOME PERFECT

Q 25. What are the software's used in Industries for Piping Design & Engineering

AutoCAD ,CAESAR II , PDMS ETC