Instrumentation Automation Surveillance & Communication Sector Skill Council

Summary of

Occupational Mappings (OM) in different Sub-sectors and Segments

and Identification of Job Roles

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Glossary

Keyword	Definition
A&T	Assembly and Testing
AHU	Air Handling Unit
CAL SP	Calibration Service Provider
COMM	Broadcast Communication (sub-sector)
D&D	Design and Development
I&A	Instrumentation and Automation (sub sectors)
I&C	Installation & Commissioning
O&M	Operations and Maintenance
R&M	Repair and Maintenance
S&M	Sales & Marketing
SURV	Surveillance (sub-sector)
PLC	Programmable Logic Controller
RTU	Remote Terminal Unit
SCADA	Supervisory Control & Data Acquisition
DCS	Distributed Control System
VFD	Variable Frequency Drive

BACK

1. About the IASC SSC

Profile of the Sector:

Automation is interdisciplinary in nature and involves Instrumentation, Mechanical, , Electrical, Electronics and IT Skills. It is utilized by all Manufacturing & Process Industries to run & operate. Automation is probably the most high tech sector and is critical for Industry. This sector's requirement is primarily being met by the equivalent field manpower affecting the performance, quality, availability and safety.

The Council has worked out the requirement to be of 50 Lakh technicians and engineers in next ten years.

Instrumentation & Automation consists of technologies such as Process sensors (pressure, temperature, level, flow), indicators and transmitters; Electro pneumatic sensors and actuators, mechanical sensors and valves, ultrasonic sensors, Gas Analyzers, PLC, RTUs, SCADA, DCS, VFD together with Pneumatic, Hydraulic and Robotic components, It is an integration of various technologies in IT, Electrical, Electronics & Mechanical domains at the Industrial level.

Through Instrumentation & Automation, the production cost decreases, quality of product improves, energy efficiency improves, wastages reduce etc.

Automation is crucial for the growth of Indian MSMEs and can enable them to compete on the world stage. Whereas technology is available in the country but the skilled manpower is not.

Technologies such as CCTV, IP Surveillance, RFID, Access Control, In motion weight measurement, boom barriers, facial recognition, Lighting & HVAC control, Energy efficiency and Broadcast technology are together called as Building Management Systems. Apart from all Industrial complexes these technologies are present in our homes and offices too.

Sub Sector Definition

Instrumentation

Any industry that deals with:

1. Designing and making instruments for sensing, measuring and/or recording some physical parameter such as temperature, level, pressure, flow, dimensions, electrical characteristics or any other sensible parameter of interest . These instruments may be of mechanical, pneumatic, hydraulic, electrical, electronic, optical, acoustic or other kind - or may include a number of these types in a single instrument. These companies are called the Instrument Manufacturers / Original Equipment Manufacturers (OEMs).
2. Integrates instruments produced by other companies into a system, which is then supplied to a company which is the end user of the system. These companies are called the System Integrators (SIs).
3. Uses instruments which are part of a system or process that the industry uses to produce or process goods. The company operates the instruments and may also maintain these using in-house / contract / outsourced resources. These companies are called the End User Industries. This is a very large segment, as virtually all industry utilize instrumentation to varying degrees, including Oil & Gas, Chemicals, Fertilizers, Cement, Steel, Mining, Textile, Package Goods, Consumer Durables, Electronics, Electricals, Transport, Pharmaceuticals, Automobiles, Solar, Utilities, Agricultural Processing, etc.

Automation

Any industry that deals with:

1. Designing and making components, sub-systems and systems that support partial or complete automation of some operation in an industry, office, building or home. These components or sub-systems may be of mechanical, pneumatic, hydraulic, electrical, electronic, optical, acoustic or other kinds - or may include a number of these types in a single system. These companies are called the Automation System Manufacturers / Original Equipment Manufacturers (OEMs).
2. Integrates automation components, instruments, panels and other accessories produced by other companies into a system, which is then supplied to a company which is the end user of the system. part of the assembly and integration may be done at end-user

premises. These companies are called the System Integrators (SIs) or Engineering Project Contractors (EPCs).

3. Uses automation systems which are part of a system or process that the industry uses to produce or process goods. The company operates the system and may also maintain these using in-house / contract / outsourced resources. These companies are called the End User Industries. This is a very large segment, as virtually all industry are increasingly employing automation to boost productivity, improve quality and make management easier. The industries include utilize instrumentation Oil & Gas, Chemicals, Fertilizers, Cement, Steel, Mining, Textile, Package Goods, Consumer Durables, Electronics, Electricals, Transport, Pharmaceuticals, Automobiles, Solar, Utilities, Agricultural Processing, etc.

Surveillance

Any industry that deals with:

1. Designing and making components and systems that support surveillance functions in an industrial, commercial, office, structure, facility or home environment. Surveillance functions include capturing and recording of audio, video activities in an area; detection of presence or movements of persons or animals inside an area; recording and or controlling entry into and exit from an area and other such uses. These companies are called the Surveillance Equipment Manufacturers / Original Equipment Manufacturers (OEMs).
2. Integrates surveillance and automation components, sensors, instruments, panels and other accessories produced by other companies into a system, which is then supplied to a company which is the end user of the system. Part of the assembly and integration may be done at end-user premises. These companies are called the System Integrators (SIs) or Engineering Project Contractors (EPCs).
3. Uses surveillance systems which are part of an installation, building, infrastruture, industrial or commercial enterprise or residential homes. The company / individuals

operate the system and may also maintain these using in-house / contract / outsourced resources. These companies / individuals are called the End User (Industries).

Broadcast Communication

Any industry that deals with:

1. Designing and making equipment and systems that support analog and/or digital broadcast communication functions in public and/or private environment. Broadcast communication functions include audio/visual recording, digitizing, processing, sending and receiving the content over the wire, cable or air using standardized radio transmission (AM, FM, VHF, other) methods. Equipment at the user premises (Customer Premises Equipment - CPE) such as Set Top Box (STB) are an important component of such systems - as these involve a very large population base. These companies are called the Broadcast Equipment Manufacturers / Original Equipment Manufacturers (OEMs).
    - Examples: Broadcasting equipment such as Radio, Satellite transmission, Telephony, Microwave, Mobile towers, DTH, MSO, IPTV, TV, Set Top Box, Router, Switches, Internet, VOIP, Intercom, E learning equipment, Media/Public address equipment.
2. Integrates broadcast communication components, instruments, cables, antennas, amplifiers, repeaters, control panels and other accessories produced by other companies into a system, which is then supplied to a company / home which is the end user of the system. Part of the assembly and integration may be done at end-user premises. These companies are called the System Integrators (SIs), Cable / Dish TV / Satellite Communication Service Providers.
3. Uses broadcast communication transmission and reception systems which are part of a radio station, studio, internet, IP TV, TV program uplinking/ downlining centers, studios, installation, building, infrastructure, industrial or commercial enterprise or residential homes. The company / individuals operate the system and may also maintain these using in-house / contract / outsourced resources. These companies / individuals are called the End User (Industries).

The IASC Sector can also be broadly classified into three types of Industry:

1. Original Equipment Manufacturer (OEM):

OEMs are organizations which make the Instrumentation, Automation, Surveillance & Broadcast Communication hardware & software. There companies supply their products to End User Industries and Systems Integrators. This is a very organized sector with very large global players dominating the list. These organizations have a huge impact on sector as they are the Key Technology developers and contribute towards operations of System Integrators and End User Industries in terms of Manpower.

2. System Integrator:

System Integrators are organizations which 'integrate' all systems for end User Industries. They are primarily Service Providers and are also called as contractors, EPC contractors etc. They generally work in setting up of the manufacturing facilities and sometimes also in their operation and maintenance. They primarily install OEMs products across various Industries and integrators or automates the entire system by connecting all the mechanical, electrical, electronics and software with the system. They have good requirement of manpower and generally work pan India and overseas also, especially in GULF, SAARC, Africa and Eastern Europe regions. This is a highly unorganized segment, with very few large players and with permanent team sizes of 15 to 50 for maximum organizations. Maximum manpower is generally floating Technicians, that move from project to project and from company to company depending upon work availability. There is also large sub-contracting in this Industry.

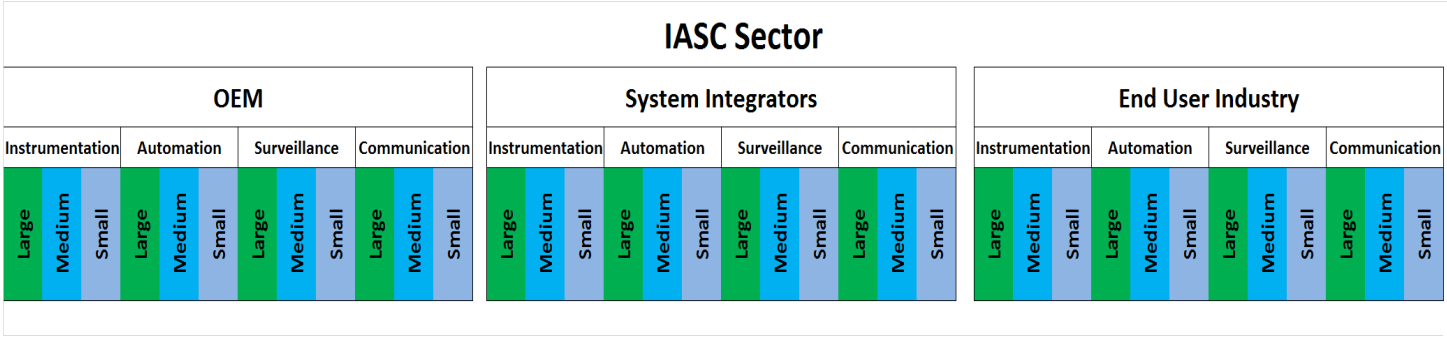
3. End User Industry:

This is the largest segment and consists of all Process and Manufacturing Industry. All the Industry be it large, Medium or Small gets covered under this segment. Automation is one area which is the most required by any Industry and unfortunately also lags most in specially MSME. Whereas today every industry has started investing in Automation Hardware and software, most face operation and maintenance challenges. Automation hardware and software also form the 'Heart' of any manufacturing in the sense that all

machines and controlled by it. For eg for Process plants, through a Control room where few Automation technicians sit, the entire plant is controlled & operated. These technicians should have detailed Automation software and hardware knowledge. On the filed there are Instrumentation Technician and Engineers teams at various processes. They are responsible for maintenance and operation of Instrumentation & Control Hardware which communicates with the Automation hardware. They ensure that calibrated responses are going in the system and that the control & safety devices are fully functioning.

In these types sub categorization can be done as Small, Medium and Large.

Thus, there are different ways of segmentation of the sector:



Size of the Sector:

Since this is a Horizontal SSC, therefore specific size of the sector is hard to project. One report puts the annual capital investment by Indian Industries into Automation hardware to be touching USD 2 Billion by 2016. This means that every year roughly Rs. 12,000 Crore worth of equipment is installed by end User Industries every year. This figure does not take into account the setting up of new manufacturing facilities which invest in Automation from scratch or the very large Building Automation segment. In terms of manpower the existing workforce is estimated to be around 26 Lakh.

Details of the Sub-Sector:

Broadly there can be four subsectors namely Automation, Instrumentation, Surveillance & Broadcast Communication. This is illustrated in the segmentation discussed above.

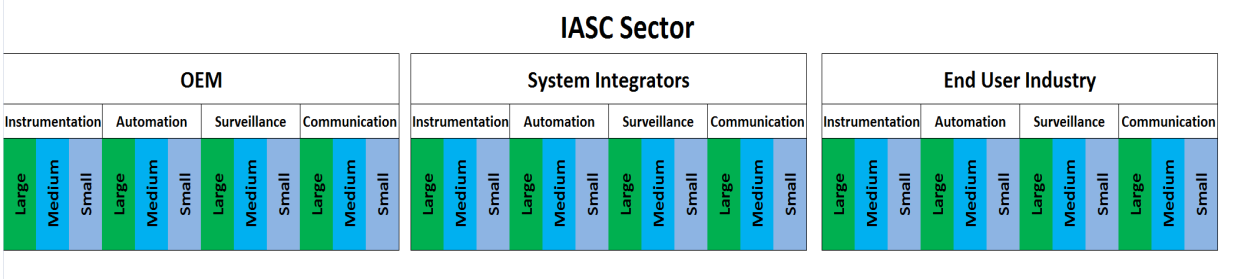


Figure 1: Sector Segmentation

Geographical Locations from where workers Hail:

Since Indian Industry is spread across the country, therefore manpower enters the workforce from all areas. Engineers generally tend to belong to Tier 1, 2 and 3 cities since training institutes are generally present in these regions. The Technicians and other support work force come from all parts of the country and the distribution is widespread.

Overseas Employment Opportunities:

There are important employment opportunities from Overseas Employers, especially from the Gulf Countries, Africa and Australia. Such countries are utilizing Indian workforce in low level as well as engineering and supervision categories in large numbers. There is an increasing trend to require highly skilled, trained and certified resources. There is therefore a huge potential for creating such resources with training and certifications which are internationally recognized. This sector will have a special focus on such certification as all the segments of the IASC sector are prime candidates for overseas employment. Communication and social skills are very important for such employment and the QPs and training curriculum must include this aspect.

Link between sectors/occupations and other sector occupations:

As explained above this sector is linked to all the Industry sectors of the economy. Whereas the skill sets required are highly technical in nature, so there is no overlapping with other occupations in the Industry. Since this sector is interdisciplinary in nature and suffers from acute shortage of

skilled manpower, therefore manpower from various other occupations such as mechanical, electrical, electronics, IT etc enters the IASC workforce by undergoing formal/ informal training. The industry trains the available workforce to whatever extent possible however the situation remains that the workforce training is sub optimal in many cases. Migration of workforce from this sector to other sectors is currently not happening as there enough jobs available and on the contrary the Sector suffers from high attrition rates.

Key trends, developments, drivers within the sector:

There is global push towards Automation. Industry 4.0 (term coined by the German Government) and Industrial Internet of Things, both the visions are focused towards profiting from the giant technological strides achieved recently in Automation of the Manufacturing & Process Industry Sector. The fourth industrial revolution, is the current trend of automation and data exchange in manufacturing technologies. It includes cyber-physical systems, the Internet of things and cloud computing. It creates what has been called a "smart factory".

Robotics is another fast developing filed which is changing the way world currently manufacturers. There is intense global debate on the prospect of loss of manufacturing jobs due to this trend. On the upside lot of new jobs related to operations of robots and ancillary industry is getting created and in the future lot of existing workforce might have to re-skill on this technology and learn to work with robots.

These developments are a unique opportunity to make India the Automation Hub of the world. Automation technologies are evolving rapidly and globally there is acute shortage of skilled manpower.

India can use their abundant technical Manpower to create vibrant Automation Service Industry. Already a lot of Automation Original Equipment Manufacturers are using India as a low cost service hub for their own products & systems installed in Gulf, Easter Europe, Latin America, Africa and South East Asia and so on; such model can be replicated and scaled up by local Entrepreneurs to build Indian Automation Services Industry, parallel to the Indian IT Services Industry.

BACK

2. Occupations Clarity

Identification of Occupations, Job Roles & Functions

This task is performed with the knowledge of the industry domains and segments we are dealing with. Our choice of partners for performing the industry survey and research reflects our focus. We have selected our partners after extensive due diligence and ensured that they have the depth of knowledge, organizational experience and geographical spread as well as ground level contacts with the segments of our interest.

Types of Occupations in the Industry

A starting point of the discussion is to look at the structure of a typical industry in the domain and identify various roles involved in running the industry and what each job role performs to meet the objectives of the enterprise.

As described in foregoing section (see figure 1), the sector is rich in segments. Each segment has its special requirements of occupations, job roles and functions to be performed.

For illustration, we will discuss the topic with the Occupational Map (OM) of a hypothetical company involved in manufacturing instrumentation or automation components and systems. The map would look something like the one shown in figure 2.

From the map, we can identify the following Occupations in a company:

Table 1: Occupations in an OEM Company (Large)

1.	Research & Development
2.	Manufacturing & Quality Assurance
3.	Sales & Marketing
4.	Engineering, Installation, Commissioning and Post Sales Support
5.	Finance & Accounts
6.	Human Resource Management
7.	Procurement & Vendor Development
8.	Corporate Affairs & Legal

Occupations >>		Research & Development				Manufacturing						Sales & Marketing					Engineering, Installation, Commissioning & After Service				Finance & Accounts			Human Resource		Procure-ment	Corporate Affairs & Legal
Tracks	NSQF LEVEL	Product Research & Design	Product Development			Production & Maintenance			Testing & Quality Assurance		Stores/ Material Management/ Inventory Control	Product Packaging & Dispatches	Channel Sales (B2C)	Institutional Sales (B2B)	Product Marketing/ Business Development	Pre-Sales/ Tendering / Technical support	Training	Product Engineering/ Integration/ System Design	Product/ System I&C	Product/ System Installation	Product/ System R&M	Audit and Accounting	Taxation	Finance (includes Budgeting & Forecasting)	Recruitment & Compensation	Learning and Development	Purcase	Corporate Affairs & Legal
Management	9	Managing Director/ Chief Executive Officer/											Chief Operating Officer/ Chairman & Managining Director /					Proprioter/ Partner									
	8,9	VP/GM/Director /Head /Chief Engineer/ Chief Technology Officer Research & Product Development				Director/ President - Plant/ Operations & Maintenance							Director/ President : Sales/ Marketing/ Business Development					Director/ President - Projects/ Engineering/ Contracts/ after sales				Director/ President : Finance & Accounts			Director/ President : HR		Director/ President : Purchase	Director/ President : Corporate Affairs/ Legal
	8	Principal Scientist / Principal Engineer / Chief Architect / R&D Manager/ Product Manager				VP/ GM- Production/ Process/ Line	VP/ GM- Maintenance		VP/ GM Testing & quality Assurance		VP/ GM: MM/ Stores		VP/ GM: Sales		VP/ GM : Marketing			VP/ GM : engineering/ system design	VP/ GM : I&C	VP/ GM : O&M	VP/ GM : Product support / Repair	VP/ GM : Accounts	VP/ GM : Taxation	VP/ GM : Finance	VP/ GM : HR		VP/ GM : Purchase	VP/ GM : Corporate Affairs / Legal
						AGM Production/ Process/ Line	AVP/ AGM - Automation	AVP/AGM - Instrumnetation	AVP/AGM - Testing & Calibration	AVP/AGM - Quality Assurance	AVP/ AGM - Material Management/ Stores	AVP/AGM - Packaging / Dispatches	AVP/ AGM - Channel Sales	AVP/ AGM - Institutional Sales / business development	AVP/ AGM - Marketing/ Business Development		AVP/AGM - Training	AVP/ AGM - engineering/ system design	AVP/ AGM - I&C	AVP/ AGM - O&M	AVP/ AGM - Product Support / Repair	AVP/ AGM - Accounts	AVP/ AGM - Taxation	AVP/ AGM - Finance	AVP/ AGM - HR	AVP/ AGM - Training	AVP/ AGM - Purchase	AVP/ AGM - Corporate Affairs / Legal
Middle Management	7	Sr Engineer / Sr Scientist -Design	Program Manager - Product Development			Sr Manager Production/ Process/ Line	Sr Manager - Automation	Sr Manager - Instrumentation	Sr Manager - Testing & Calibration	Sr Manager - Quality/ Process Assurance	Sr Manager - MM/Stores	Sr Manager Packaging/ Dispatches	Sr Manager - Channel Sales	Sr Manager - Channel Sales	Sr Manager : Marketing/ BD	Sr Manager- Pre-Sales/tendering/ technical support	Sr Manager - Training	Sr Manager - Engineering/ system design	Sr Manager - I&C	Sr Manager - O&M	Sr Manager - Product Support / Repair	Sr Manager - Accounts	Sr Manager - Taxation	Sr Manager - Finance	Sr Manager - HR	Manager - Training	Sr Manager - Purchase	Sr Manager - Corporate Affairs / Legal
			Manager - Product Development			Manager - Production/ Process/ Line	Manager - Automation	Manager - Instrumentation	Manager - Testing & Calibration	Manager - Quality/ Process Assurance	Manager - MM/ Stores	Manager Packaging/ Dispatches	Manager - Channel Sales	Manager - Channel Sales	Manager : Marketing/ BD	Manager- Pre-Sales/ Tendering/ Technical support	Manager - Training	Manager - Engineering/ system design	Manager - I&C	Manager - O&M	Manager - Product Support / Repair	Manager - Accounts	Manager - Taxation	Manager - Finance	Manager - HR	Master Trainer	Manager - Purchase	Manager - Corporate Affairs / Legal
			Asstt Product Manager, Team lead, Product Incharge	Asstt Product Manager, Team lead, Product Incharge	Asstt Product Manager, Team lead, Product Incharge	Shift Incharge/ Asstt Manager - Production	Assitant Manager - Automation	Assitant Manager - Instrumentation	Asttn. Manager - Testing & Calibration	Asttn. Manager - Quality/ Process Assurance	Asttn. Manager - MM/ Stores	Asttn. Manager Packaging/ Dispatches	Asstn. Manager - Channel Sales; Zonal Manager	Asstn. Manager - Channel Sales	Asttn. Manager : Marketing/ BD	Asstn. Manager - Pre-Sales/tendering/ technical support	Sr Trainer	Asttn. Manager : Engineering/ system design	Asttn. Manager : I&C	Asttn. Manager O&M	Asttn. Manager Product Support / Repair	Asttn. Manager Accounts	Asttn. Manager Taxation	Asttn. Manager Finance	Asttn. Manager HR	Sr Trainer	Asttn. Manager Purchase	Asttn. Manager Corporate Affairs / Legal
			Sr Engineer - Development	Sr Engineer - Testing	Sr Engineer - Qualification	Shift supervisor/ Sr Engineer - Production	Sr Engineer - Automation	Sr Engineer - Instrumentation	Sr Engineer - Testing / Calibration	Sr Engineer - Quality/ Process Assurance	Supervisor - MM/ Stores	Supervisor - Packaging	Sr Sales engineer/ Territory Manager	Sr Sales Engineer	Sr Engineer: Marketing/ Sales	Sr Engineer - Pre-Sales/Tendering/Technical support	Trainer	Engineer : Engineering/ system design	Engineer- I&C	Engineer- O&M	Engineer Product Support / Repair	Jr. Manager Accounts	Jr. Manager Taxation	Jr. Manager Finance	Jr. Manager HR		Jr. Manager Purchase	Senior Legal Associate
	6	Engineer / Scientist - Design	Engineer / Scientist - Development/Prototyping	Engineer / Scientist - Testing	Engineer / Scientist - Product Qualification	Sr Operator/ Engineer - Production / Line/ Process	Engineer - Automation	Engineer - Instrumentation	Engineer - Testing / Calibration	Engineer - Quality/ Pocess Assurance	Sr MM/Stores Assistant	Sr Packaging Assistant	Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/ Trainee Engineer - Pre-Sales/Tendering/Technical support	Jr Trainer	Assistant Engineer - Engineering/ System Design	Assistant Engineer - I&C	Assistant Engineer - O&M	Asstt Engineer - R&M	Sr Accounts Associate	Sr Taxation Associate	Sr Finance Associate	Sr HR Associate	Trainer	Sr. Purchase Officer	Legal Associate
Execution	5	Jr/Trainee Engineer /Jr Scientist - Design	Jr/Trainee Engineer /Jr Scientist - Development/Prototyping	Jr/Trainee Engineer /Jr Scientist - Testing	Jr/Trainee Engineer /Jr Scientist - Product Qualification	Operator/ Jr Engineer - Production / Line/ Process	Jr/Asstt/Trainee Engineer - Automation	Jr/Asstt/Trainee Engineer - Instrumentation	Jr/Asstt/Trainee Engineer - Testing / Calibration	Jr/Asstt/Trainee Engineer - Quality/ Pocess Assurance	MM/Stores Assistant	Packaging Assistant	Sr Sales Executive	Sr Sales Executive	Sr Sales Executive	Sr Pre Sales Executive - Pre-Sales/Tendering/Technical support	Jr Trainer	Supervisor - Engineering/ System Design	Supervisor - I&C	Supervisor - O&M	Supervisor - R&M	Accounts Associate	Taxation Associate	Finance Associate	HR Associate	Jr Trainer	Purchase Officer	
		Sr Technician - Dev, Testing, Prototyping, Qualification	Sr Technician - Dev, Testing, Prototyping, Qualification	Sr Technician - Dev, Testing, Prototyping, Qualification	Sr Technician - Dev, Testing, Prototyping, Qualification		Sr Technician/ Supervisor - Automation	Sr Technician/ Supervisor - Instrumentation	Sr Technician/ Supervisor - Testing / Calibration	Sr Technician/ Supervisor - Quality/ Process									Sr Technician I&C	Sr Technician O&M	Sr Technician R&M							
	4	Technician - Dev, Testing, Prototyping, Qualification	Technician - Dev, Testing, Prototyping, Qualification	Technician - Dev, Testing, Prototyping, Qualification	Technician - Dev, Testing, Prototyping, Qualification	Jr Operator Production / Line/ Process	Technician - Automation	Technician - Instrumentation	Technician - Testing / Calibration	Technician Quality/ Process Assurance	Jr MM/Stores Assistant	Jr Packaging Assistant	Sales Executive	Sales Executive	Sales Executive	Executive - Pre-Sales/ Tendering/ Tech support		Technician - Engineering/ System Design	Technician - I&C	Technician - O&M	Technician - R&M	Accounts Trainee	Taxation Trainee	Finance Trainee	HR Trainee		Purchase Assistant	
	3	Jr Technician	Jr Technician	Jr Technician	Jr Technician	Jr Technician	Jr Technician	Jr Technician	Jr Technician		Sotres Helper	Packaging Helper	Sales Assistant / Jr Sales Executive	Sales Assistant / Jr Sales Executive	Sales Assistant / Jr Sales Executive	Pre-Sales Assistant / Jr Pre-Sales Executive		Jr Technician	Jr Technician	Jr Technician	Jr Technician							
						Technician Helper	Technician Helper	Technician Helper	Technician Helper										Technician Helper	Technician Helper	Technician Helper							

Figure 2: Occupational map of an OEM manufacturer in Instrumentation & Automation industry (large)

Based on the OM of table 1 and figure 2, we can identify the following Job Roles in different Occupations.

1. Occupation: Research & Development

Description of the Occupation:

To conceive of new products, product improvements and enhancements to fill market needs - existing as well as emerging. Idea generation and capitalization is a key need. Competitive research and analysis is also required. Based on all inputs, products are defined functionally and technically. Conceptual design and prototyping is done to evaluate feasibility and usability. Based on detailed testing and informed feedback, detailed specifications and engineering designs of the product and manufacturing infrastructure are made. A product qualification and certification plan is also made and executed. The product development includes documentation of detailed manufacturing designs, processes, testing and QA procedures and tools, as well as customer support and maintenance.

Job Roles Leadership level :

- R&D Head/Chief Engineer/General Manager/Director/ VP/CTO

  Functions

  - Vision, Mission, Goal setting
  - Business & Technology Alignment
  - Technology and Innovation Roadmap
  - Resource and People Planning
  - IP Generation and Exploitation
  - Product and Portfolio directions
  - Market Trends and Forecasts
  - Risk Assessment & Mitigation
  - Internal and external Communication

- R&D Manager, Chief Architect, Senior/Principal Engineer, Senior/Principal Scientist, Lab Manager

  Functions

  - Vision, Mission, Goal Execution
  - Technology Adaptation
  - Innovation Management
  - Resource and people management
  - IP Creation and Patent Filing
  - Product and Portfolio Management
  - Workplace Environment Management
  - Communication
  - Competitive Analysis
  - Risk monitoring and management

Job Roles Middle level:

- R&D Manager, Technology Manager, Senior Architect, Principal Scientist, Lab In-charge,

Functions

Plan, manage, guide, facilitate, communicate, monitor

- Product Specifications
- Product Design
- Prototype Development
- Performance Testing
- Compliance Testing
- Product Certification
- Product Upgrade
- Technology Acquisition
- Technology Assimilation
- Technology Innovation
- Skill Development
- Process Development
- Process Modification
- Environment Engineering
- Product Documentation
- Deep Technical Support
- Customer Interaction
- Product Customization
- Product Optimization
- Collaboration within and outside organization
- Team / Organization morale
- Workplace environment, safety and health

- Senior Design Engineer, Product Architect, Senior Scientist, Product Specialist, Team Lead, Lab Supervisor

Functions

Design, Model, Simulate, Prototype, Develop/Adapt technology, Develop/Adapt Process, Develop Vendors/partners, Collaborate within and outside organization, Implement Design, Test, Qualify, Optimize, Document, Innovate, Create IP, Demonstrate Technology and Product, Support Customer, Train, Get Feedback, Analyze product performance and feedback, Modify design, Acquire/Develop deep skills, Develop/Adapt IT solutions and software, Asset reuse, Product reliability, safety, usability

- Product Design using modeling, simulation, asset reuse, PLM
- Create Specifications for product/process
- Prototype specified design using in-house/external/ outsourced resources
- Performance Testing using in-house/external/outsourced resources
- Compliance Testing using in-house/external/outsourced resources
- Product Certification using in-house/external/outsourced resources
- Product Upgrade - incorporate feedback and change requests into product lifecycle
- Technology Acquisition - identify, evaluate and recommend product/technology/process for acquisition
- Technology Assimilation - training (in house/external) on product/technology/process. Adoption in PLM
- Technology/ Process Innovation - ideate, design, build, test, evaluate
- Skill Development - assessment, training, certification of self and junior staff

- Environment Engineering - Energy efficiency in product and processes, use of renewable resources, avoidance of rare resources, recycling, avoiding wastage, limiting discharge of effluents and C footprint
- Product Documentation - create, update, communicate, support
- Deep Technical Support - field/site visit, troubleshooting, analysis, resolution, product/process change request,
- Customer Interaction - listen, explain, satisfy, get feedback, learn
- Product Customization - assess need and feasibility; analyze implication on manufacturing, process, support; recommend or deny change; implement if approved; document, train, support
- Product Optimization - analyze cost, performance, usability, manufacturability, maintainability, reliability and suggest changes.

Job Roles Entry / support level:

- Design Engineer, Product Testing & Qualification Engineer, Prototyping Engineer, Scientist

Functions

- Implement specified design using standard/specified processes, equipment and material
- Produce prototype
- Understand Qualification requirements
- Test prototype
- Report results
- Create or adapt fabrication, processing, assembly and test setups for implementing the specified design
- Develop skills on the technologies, equipment and processes used in the organization

- Engineer Trainee, Assistant Engineer, Assistant Scientist Junior Scientist

Functions

- Develop skills on the technologies, equipment and processes used in the organization
- Execute/Assist in setting up, prototyping, fabrication, assembly and testing
- Train the technicians in relevant skills
- Prepare / Assist in Documentation

- Technician, Lab Assistant

Functions

- Develop skills on the technologies, equipment and processes used in the organization
- Perform technical operations relating to setting up, prototyping, fabrication, assembly and testing

Some companies have Product Life Cycle Management as a distinct occupation. This can be developed as follows:

Occupation: Product Planning, Product Lifecycle Management

Description of the Occupation:

Product lifecycle management is an integrated, information-driven approach to all aspects of a product's life, from its design through manufacture, deployment and maintenance—culminating in the product's removal from service and final disposal. PLM software suites enable accessing, updating, manipulating and reasoning about product information that is being produced in a fragmented and distributed environment.

Another definition of PLM is the integration of business systems to manage a product's life cycle.

Job Roles in the Occupation

- Product Manager, PLM Specialist, PLM Architect

Functions performed in the job roles:

Generic

- Market Research
- Technology Survey
- Opportunity Identification
- Idea Generation
- Concept Development
- Concept Validation
- Design & Develop
- Commercialize
- Service & Support
- Phase out, Dispose

PLM specific

- Engineering vaulting
- Part classification and reuse
- Collaborative design
- Product structuring
- Process / cost management

The detailed analysis of other occupations and job roles is carried out in a similar manner and is partially described in the appendix.

The Occupations in a System Integrator company would look like table 2.

Table 2: Major Occupations in an SI Company

1.	Sales & Marketing
2.	Project Engineering & Project Documentation
3.	Project Planning & Management
4.	Procurement & Vendor Development
5.	Fabrication / Procurement of Control Panel & Accessories
6.	Control Panel Assembly and Wiring
7.	Programming
8.	System Integration and Testing
9.	Testing & Quality - Inward, Shop floor and Field
10.	Dispatch & Logistics
11.	Installation & Commissioning
12.	Post Sales Support
13.	Finance, Accounts & Contract Management
14.	Human Resource Management
15.	Training of shop floor and field staff
16.	Company Affairs & Legal
17.	Infrastructure Management & IT Support

Some of these occupations can be grouped together. For example in the above table Control Panel Assembly and Wiring; Programming and System Integration and Testing can be put under one occupation called System Integration.

The Occupations in other segments of the sector are similarly identified and expanded.

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3. Employment Opportunities in the Industry

It is well known that in the traditional industry and business organizations the number of job opportunities are highest at the lower levels and this follows a pyramid shape. This is illustrated in figure 3. The details of occupations, job roles and functions are provided in later sections.

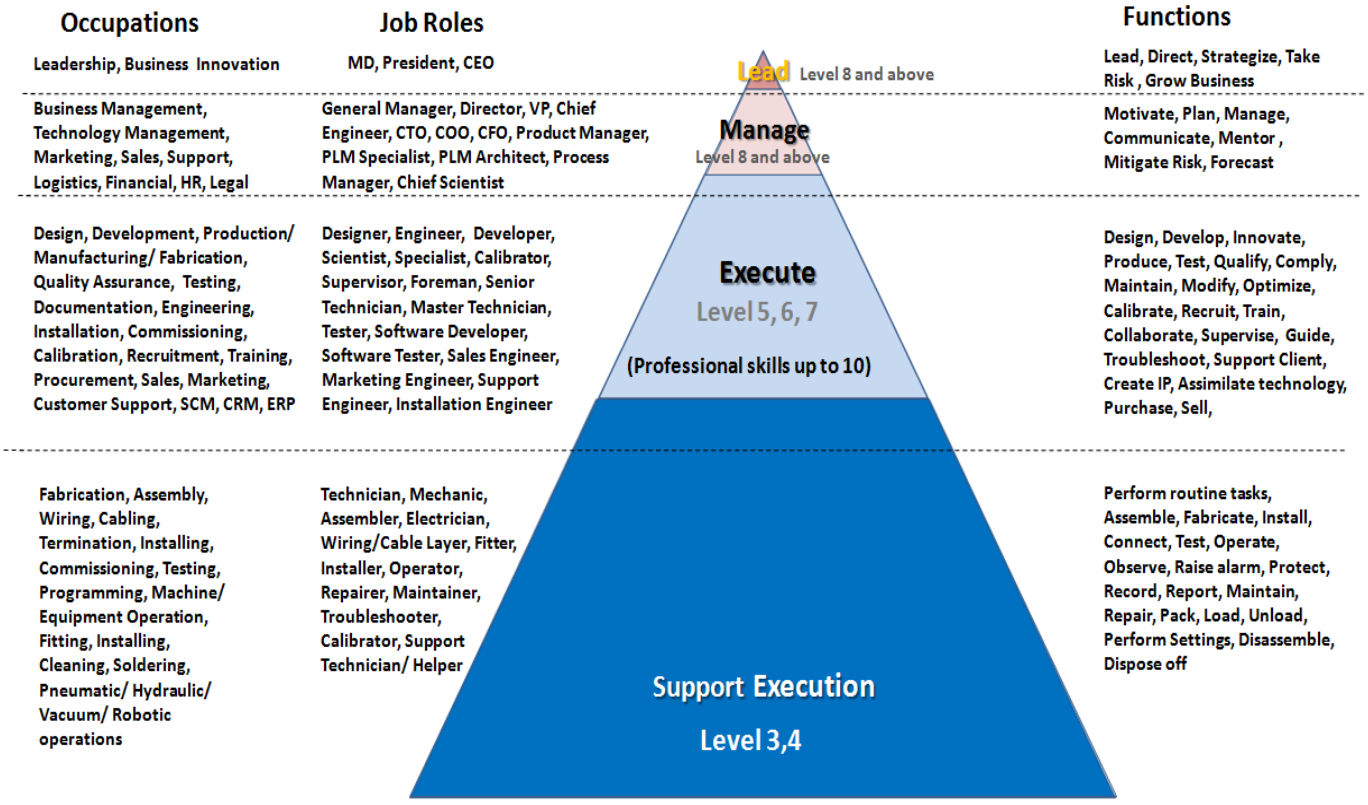


Figure 3. The Employment Opportunity Pyramid

BACK

4. Typical Age Band of Work force

The age bands of workforce in the sector are generally found to be as shown in Table 3.

Table 3 : Estimated Age Band at different Levels

Sl.	Level	Age Band
1	Entry Level	18-22
2	Execution Level and Junior Management	22-30
3	Middle Management	25-40
4	Senior Management	35 - 58
5	Contract Employees	18 - 65

Contract employees are employed in significant numbers by the System Integrators and Engineering Project Contractors (EPC). Industry experts are engaged post retirement as Consultants, Specialists, Trainers on part time and retainership basis.

Large end users such as process plants, infrastructure development companies also employ contract employees in good numbers.

Average Age of Workforce

It requires a detailed data and survey to arrive at this statistic.

However, based on discussions with some industry experts and making some hypothesis about the distribution of workforce in different segments and occupations, a heuristic estimation is arrived at as follows:

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Large Industry

Sl.	Level	% of Total	Age Band	Avg age
1	Entry Level	65	18-25	21.5
2	Junior Management and execution Level	20	22-30	26
3	Middle Management	8	25-45	32.5
4	Senior Management	2	40 - 58	49
5	Contract Employees	5	18 - 65	25
			Weighted Average	**24.01**

MSME Industry

Sl.	Level	% of Total	Age Band	Avg age
1	Entry Level	55	18-25	21.5
2	Junior Management and execution Level	20	22-30	26
3	Middle Management	10	25-45	32.5
4	Senior Management	5	40 - 58	49
5	Contract Employees	10	18 - 65	25
			Weighted Average	**25.23**

Small Industry

Sl.	Level	% of Total	Age Band	Avg age
1	Entry Level	40	18-25	21.5
2	Junior Management and execution Level	20	22-30	26
3	Middle Management	20	25-45	32.5
4	Senior Management	10	40 - 58	49
5	Contract Employees	10	18 - 65	25
			Weighted Average	**27.70**

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5. Opportunities for Progression

The Occupational Maps (OM) for various segments capture the opportunities for progression within the industry.

Generally, the concept of career tracks (horizontal) and vertical levels (skill levels and management hierarchy) provide guidance for how any individual can progress in an organization in an industry segment.

For example, the OM for an EU industry in Instrumentation has the following progression path defined:

			Production & Maintenance			Testing & Quality Assurance		
Management	8,9		Chief Executive Officer / Managing Director/ President					
	8	/ Chief ngineer ss R&D	Director/VP/ GM- Production/ Process/ Line	Director/VP/ GM- Maintenance		Director/VP/ GM Testing & quality Assurance		
		gers / gineer, Process pert/ ntist	AGM Production/ Process/ Line	AVP/ AGM - Automation	AVP/AGM - Instrumnetation	AVP/AGM - Testing & Calibration	AVP/AGM - Quality Assurance	AV Ma
Middle Level	7	or s cientist / /	Sr. Manager Production/ Process/ Line	Sr. Manager - Automation	Sr. Manager - Instrumentation	Sr Manager: Testing & Calibration	Sr Manager: Quality/ Process Assurance	
		Engineer/ Prodct / Product	Production/ Line/ Process Incharge	Manager - Automation	Manager - Instrumentation	Manager: Testing & Calibration	Manager: Quality/ Process Assurance	
		Engineer gner/	Shift Incharge	Sr Engineer - Automation / Asstt Manager - Automation	Sr Engineer- Instrumentation / Asstt Manager - Instrumentation	Sr Engineer Testing / Calibration/ Asstt. Manager - Testing & Calibration	Sr. Engineer Quality/ Process Assurance/ Asstt Manager - Quality/ Process Assurance	A
	6	/ Sr Lab	Shift Supervisor	Engineer - Automation	Engineer - Instrumentation	Engineer - Testing / Calibration	Engineer quality/ Process Assurance	
Entry Level	5	Trainee sistant	Sr. Operator Production/ Line/ Process	Jr / Asstt/ Trainee Engineer - Automation	Jr / Asstt/ Trainee Engineer - Instrumentation	Jr / Asstt/ Trainee Engineer - Calibration	Jr / Asstt/ Trainee Engineer - Quality/ Process Assurance	
			Operator Production/ Line/ Process	Sr Technician - Automation	Sr Technician - Instrumentation	Sr Technician - Testing / Calibration	Sr Technician - Quality/ Process Assurance	
	4		Jr. Operator Production/ Line/ Process	Technician - Automation	Technician - Instrumentation	Technician - Testing / Calibration	Technician - Quality/ Process Assurance	
	3		Operator Helper	Technician, Assistant - Automation	Technician, Assistant - Instrumentation	Technician, Assistant - Testing / Calibration	QA Helper	

Similar paths can be seen in other OMs.

The opportunities of lateral shifting in the segments of the IASC sector exist - as there is a great deal of synergy amongst the segments (which is the reason for having these together in the sector).

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6. Typical Career Routes

The Occupational Maps (OM) for various segments capture the career routes within the industry - as captured by the tracks in the map.

Generally, migration from one track to another requires a change in skill sets - and therefore some amount of retraining. At the management levels the tracks converge - so that the top leadership can be occupied conceptually by persons from any track.

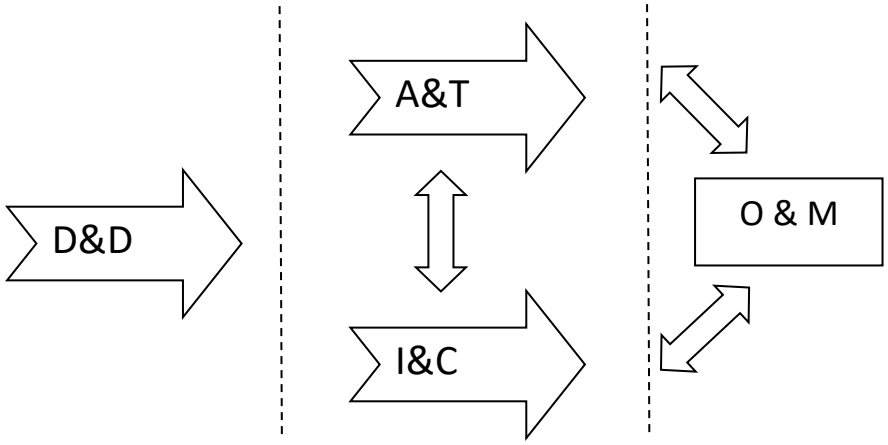
The same is true of inter segment transfers.

However, at the execution level, intra segment transfers are generally possible from more technical to less technical tracks - as the skills of less technical tracks generally can be learnt with less effort and training as compared to those of highly technical tracks.

Hence, we see a frequent transfer from R&D to Manufacturing or Technical Sales & Marketing. The reverse transfer is rare.

For horizontal progression, the following guidance may be used:

For a given skill set, transfer across OEM, SI, EU may be feasible at the same level in the following direction:



Note :

- It is generally possible to move from Design and Development roles to Assembly & Testing as well as Installation and Commissioning roles or Operation and Maintenance. However, the reverse move is generally difficult owing to special skills needed for D&D jobs.
- It is generally feasible to move between A&T, I&C and O&M roles at the same levels.

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7. Anticipated Change in the Employment Patterns

In line with the global change towards more automation, we expect the following changes in the employment patterns in the industry:

1. The relative need for manual intensive job roles will reduce. This includes roles like fitters, painters, sheet metal fabricators, PCB soldering and assembly technicians, component level repair technicians etc. - which will be done increasingly using automated fabrication, finishing and assembly methods.
2. With more automation, the need for deep technical skills will reduce and will be concentrated mostly in OEM companies who design, develop and manufacture. Such OEMs will again leverage automation in design, fabrication and testing - thus reducing the dependence on highly skilled people.
3. The System Integrators and End Users will see expanding needs for people skilled in programming, installing, using, operating, maintaining (at module level) and trouble shooting. This means more people at the lower end of the pyramid with entry level skills in assembly, programming and operation of intelligent sensors, instruments and systems.
4. On the other hand, with emphasis on 'Make in India' we expect to see more design, development and manufacturing here. So, this will create demand for deep technical skills - to replace the 'screw driver' culture.
5. Increasingly, the rural areas will see more penetration of technology - especially in Solar Lighting, Solar Water Pumping, Energy harvesting, Supply Chain penetration, Digital TV, Set top Boxes, FM radios, Internet and Mobile applications, Healthcare automation, Surveillance, Agricultural automation and much more. This will generate rural requirements for trained workforce and stem the migration of labor from rural to urban areas to some extent.

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8. Learning Opportunities Which can Enhance the Qualifications of Workers

The anticipated changes in the employment patterns discussed in the previous section reinforces the emerging opportunities for which skilling is necessary at the grass root level. It is expected that the demand for training is such job roles will be seen and the training provides will need to gear up accordingly.

The following occupations and Job roles are expected to see demand:

1. Control Panel Assembly, Testing, Installation and Commissioning to support application and automation in all segments - Instrumentation, Automation, Surveillance & Broadcast Communication.
    a. Control Panel Wiring Technician
    b. Instrument site cabling and termination Technician
    c. Data Cabling and termination Technician
    d. Video and Camera Cabling technician
    e. Fiber Optic Cabling and Termination Technician
    f. Panel Assembly Testing Technician
    g. Panel Testing Technician
    h. Field Installation and Maintenance Technician
    i. Set Top Box installation Technician
    j. PLC Technician
    k. Fire Alarm Panel Technician
    l. HVAC Technician
    m. Automated Solar Pumping Installation Technician

2. Automation components assembly, installation, operation and maintenance
    a. Pneumatics Technician
    b. Hydraulics Technician
    c. Technician Multi Skill - Mechanical, Electrical, Pneumatic & Hydraulic
    d. Robotics technician
    e. Mechatronics Technician
    f. PLC Programmer
    g. SCADA Programmer
    h. Robotic Programmer
    i. Robotic Operator
    j. Automation Troubleshooter
    k. Automated Attendance System Installer
    l. Surveillance System Installer

m. Surveillance System Operator
n. Surveillance System Troubleshooter

The above list is representative and not exhaustive.

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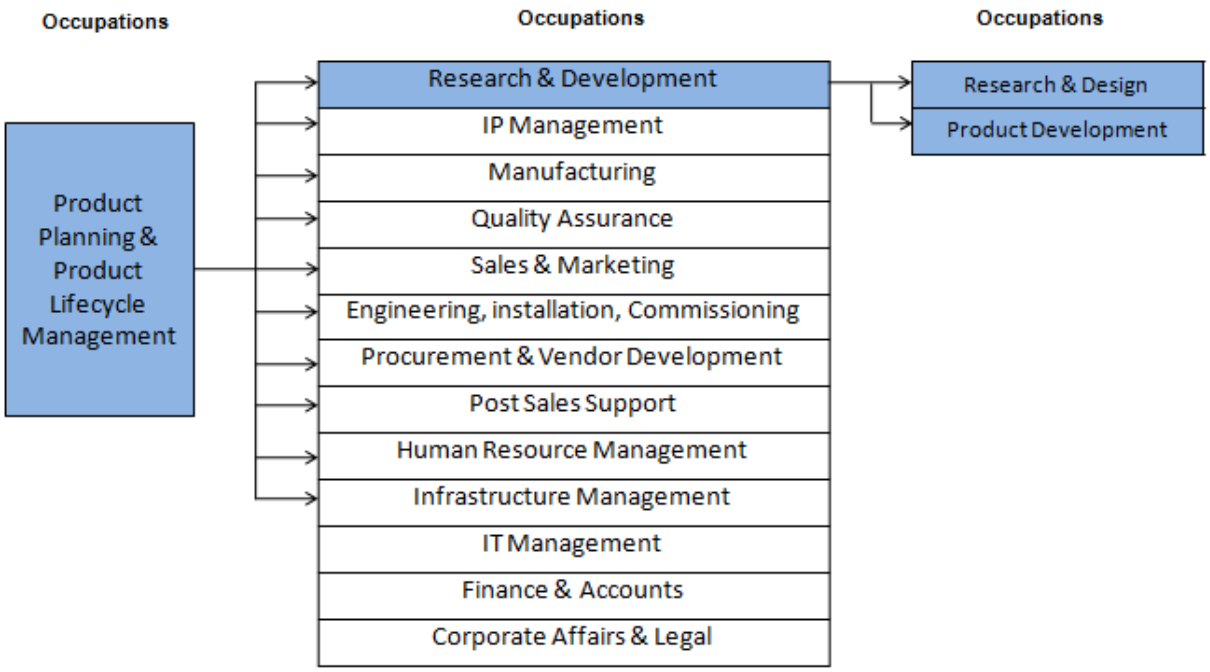
9. Functional Analysis

It is a three step process.

Step 1: Identify Occupations

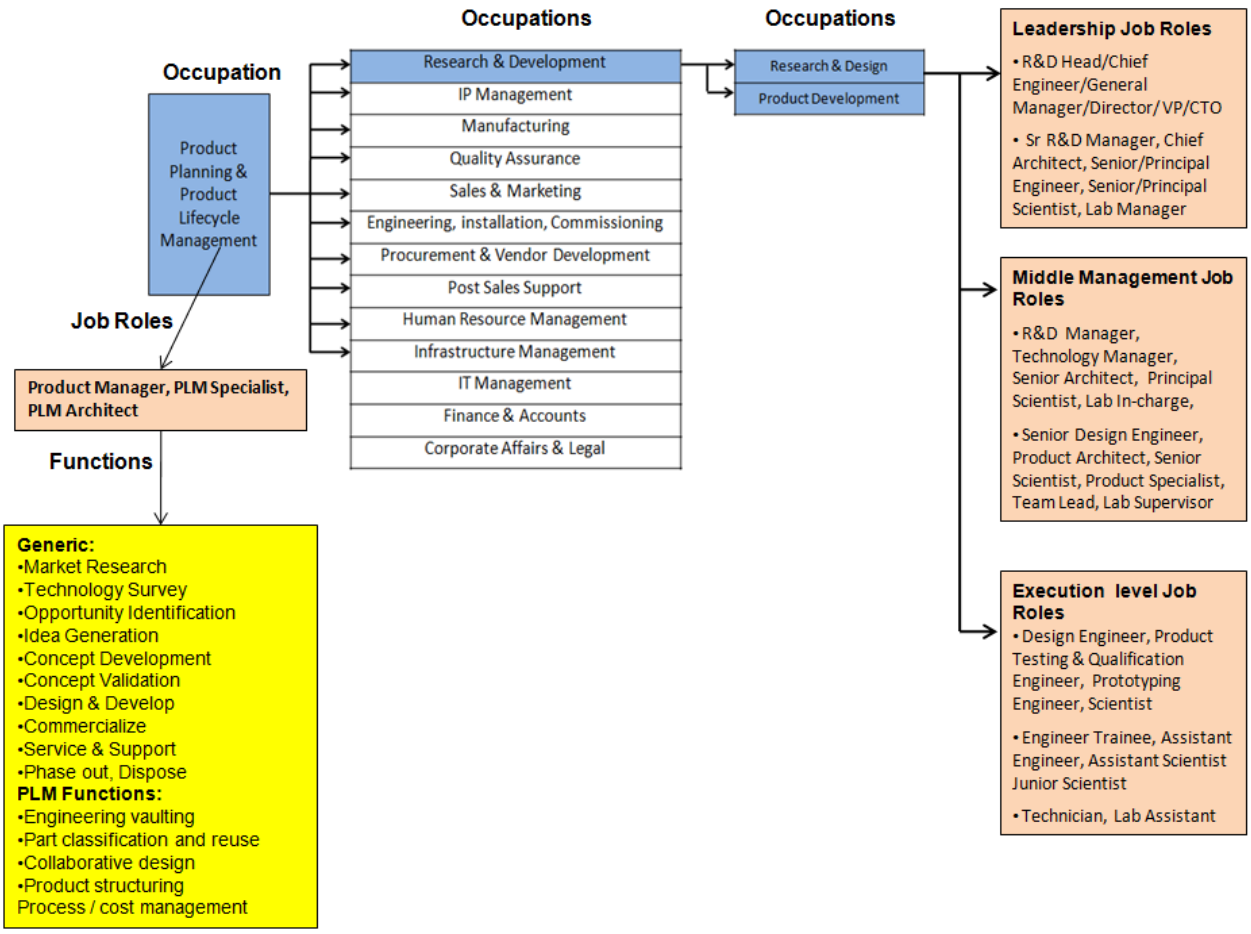
Identify Occupations at different levels of the organization. Occupations can be grouped together, based on similarity. As an example, the top level occupations related to Product Planning and Development in an OEM manufacturing Instrumentation and Automation components is shown below. It is a partial view of all occupations in the organizations. The occupations are highlighted in blue.

Occupational Map for OEMs in
Instrumentation and Automation Segment
(Partial – showing one top level occupation group)



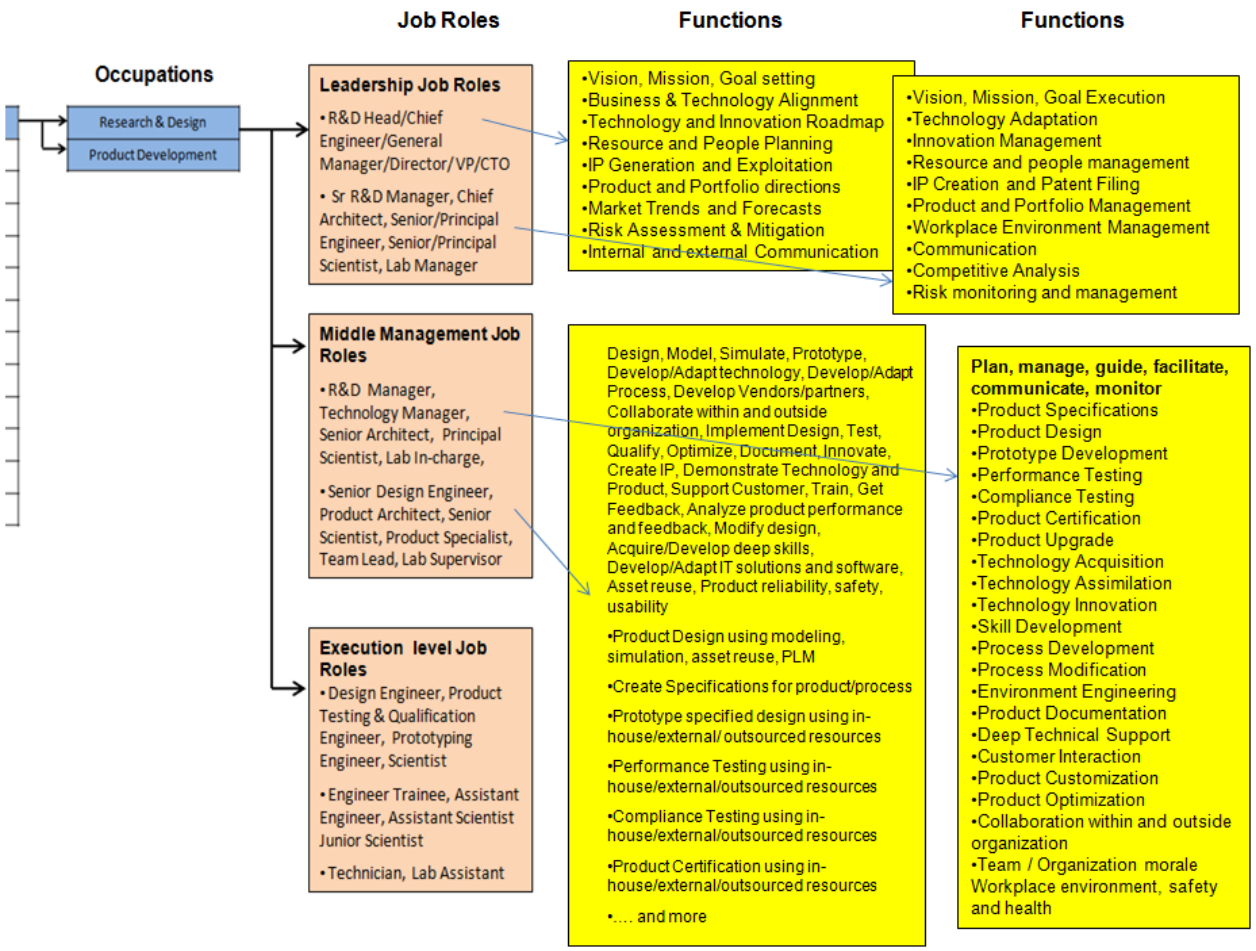
Step 2: Identify Job Roles

For each occupation, we determine what are the job roles are normally associated with that occupation in the industry. Many job roles have alternate names which are popularly accepted in the industry.



Step 3: Identify Functions performed within each job role

The next step is to Identify various functions that each Job Role performs. Most of these functions are specific to the role - however there are some generic functions that most jobs in an occupation or in an industry are required to perform. For example, communication, reporting, basic IT functions like email, safety, security, health and workplace cleanliness related routine functions are assumed to be included. The functions have specific skill requirements and these are addressed in relevant NOS.



The three step process is repeated for all occupations and job roles to get the complete functional analysis which then becomes input to the development of Qualification Packs and the National Occupational Standards.

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9A. Notes on NSQF Levels and Entry level Jobs

The NSQF levels are reproduced in Appendix 'I' for reference.

Looking at the nature of the segments and expectations from the industry, the following criteria is used for defining entry level jobs:

A. Entry level for Job Roles that *support* execution.

- These roles perform a narrow range of well defined activities, under close supervision, with limited responsibility for the self work and no responsibility for other's work.
- These individuals come with 10/ 12/ ITI background, with or without experience. Can read and write in at least one language. Knowledge of English is a plus for facilitating mobility and progression.
- These individuals come with very limited knowledge of the domain and have to learn on the job and acquire the desired skills. There may be some orientation and training provided by the employing organization - which may include demonstration of tools and techniques, reading and understanding basic drawings and diagrams, Do's and Don'ts, useful productivity and quality tips and rules. However, owing to very limited knowledge base of the candidates, theoretical concepts are not the focus.
    - **Examples include**: Junior Technician, Assistant Technician, Junior Technician Panel Assembly, Assistant Technician Panel Assembly, etc.

Level	Process required	Professional knowledge	Professional skill	Core skill	Responsibility
Level 3	Person may carry out a job which may require limited range of activities, routine and predictable	Basic facts, process and principle applied in Trade of employment	Recall and demonstrate practical skill, routine and repetitive in narrow range of application	Communication written and oral, with minimum required clarity, skill of basic arithmetic and algebraic principles, personal banking, basic understanding of social and natural environment	Under close supervision. Some responsibility for own work within defined limit.

- **These Job Roles have NSQF level of 3.**

B. Entry level for Job Roles that *perform execution* at lower levels .

- These roles perform a predictable and well defined set of activities, under limited supervision, with responsibility for the self work and no responsibility for other's work.
- The individuals must be capable of learning about new technologies and products used in their field of operation.

- These individuals come with ITI / Diploma background, with or without experience. Can read and write in English to be able to understand Standard Operating Procedures (SOP), drawings and technical documents. They are also required to take instrument readings, record these on paper and in computer formats, do mathematical processing using tools and prepare reports in defined formats. They also need to be able to send and receive emails.
- These individuals come with limited knowledge of some specific aspects of the domain. They have to learn on the job and acquire the new skills, so that they can expand their scope of work and progress vertically to roles of more responsibility, as well as horizontally to different functions. There may be some orientation and training provided by the organization - which may include familiarization with tools, techniques, documents, formats, drawings and diagrams, Do's and Don'ts, useful productivity and quality tips and rules. The individual is expected to known basic theoretical concepts essential for the job.
    - **Examples include**: Calibration Technician, Instrumentation Technician, Robotics Technician, Mechatronics Technician, Automation Technician etc.

Level	Process required	Professional knowledge	Professional skill	Core skill	Responsibility
Level 4	Work in familiar, predictable, routine, situation of clear choice	Factual knowledge of field of knowledge or study	Recall and demonstrate practical skill, routine and repetitive in narrow range of application, using appropriate rule and tool, using quality concepts	Language to communicate written or oral, with required clarity, skill to basic arithmetic and algebraic principles, basic understanding of social political and natural environment	Responsibility for own work and learning

- **These Job Roles are at NSQF level 4.**

C. Entry level for Job Roles that perform product testing, product qualification, production supervision, quality assurance, programming, mechatronics and robotics assembly and testing, and similar functions.

- These Job that requires well developed skill, with clear choice of procedures in familiar context. The individuals have knowledge of facts, principles, processes and general concepts, in their field of work.
- These individuals are entering the profession and are expected to acquire the essential practical domain knowledge quickly for which the organizations run in-house orientation and training programs. The learning is on the job as well as self acquired. These individuals are expected to reach management roles in the occupation in the course of time and hence understanding of all aspects of the domain, including the current and evolving technology, practices and standards is essential. These individuals come with required educational qualifications - Diploma or Degree in Engineering / Technology/ Science which equips them with self learning capability which is the biggest differentiator.

- There is a clear distinction with the category 'A' and 'B' entry level Job Roles in which the individual's theoretical knowledge is very limited and therefore the expectation to learn new concepts and apply them in the immediate job context is not there. The category 'C' roles are expected to move fast both vertically and horizontally - owing to their superior knowledge base, learning and application capability, collaboration and thought leadership capabilities. Abstraction and articulation are also key differentiators of the C category.
- **These entry level roles are at NSQF level 5. Examples include:**
    - Junior Engineer / Trainee Engineer / Assistant Engineer /Engineer- Development, Automation System Design, Production, QA, Testing, Engineering, Technical Sales, Technical Support, Installation & Commissioning, Programming, Software Development, Software Testing, Firmware Programming & Testing etc.
- **Not all level 5 jobs are entry level**. Level 5 is also applicable for Supervisory roles, where deep understanding of the operation, product or service is needed which can only be acquired through practical on the job experience for sufficient time. Hence these roles require vertical progression from level 4. Also, some jobs require a higher level of technical expertise in the area but the role is of individual performer. For such roles too, vertical progression from level 4 is prescribed.
    - **Examples of Job Roles at level 5 which are NOT entry level:**
        - Senior Technician, Senior Assembler, Senior Tester, Supervisor Calibration, Supervisor Assembly, Supervisor Testing, Supervisor Installation & Commissioning, Supervisor Technical Support, Supervisor Maintenance, Supervisor Operations etc.

D. Entry level for Job Roles that perform research, design, development, product qualification, production engineering, system engineering, deep technical selling, deep technical support and similar functions.

- These roles perform a wide range of activities which require theoretical knowledge, logical thinking , mathematical ability, analysis, specification, decision making, innovation, consultation and collaboration. The work may be performed in a structured or unstructured environment, with limited or no supervision. The individual has full responsibility for own work and may be responsible for guiding team members in supporting Job Roles . These Job Roles are for individual performers - without people management responsibilities. Owing to wide knowledge of the domain and perspective of the overall objectives of the occupation and the group, the individual is expected to guide and coach other persons in connected lower Job Roles .
- **These roles are at NSQF level 7. These roles can also start at NSQF level 5 or 6 and quickly move to level 7.**
- **The rationale for these role to be at level 5, 6 or 7 is that these roles require wide ranging, factual and theoretical knowledge in broad contexts within the field of work as well as good logical and mathematical skills. It is required that these individuals become familiar with the state of the art in the domain and what is happening in the global scene and be able to identify gaps and opportunities for innovation. They are also required to perform modeling, simulations and analysis which needs high levels of mathematical, scientific and engineering knowledge skills which are generally imparted in engineering programs. A wide range of cognitive and practical skills are needed - the practical aspect is covered under the projects**

done by the individuals for their graduate programs as well as during the training period of the employment.

- These entry level jobs normally undergo a period of training and learning to understand the domain characteristics and acquire the necessary skills in the tools, techniques, processes, documentation, standards, practices etc.
- Often these jobs are called Graduate Engineer Trainee, Trainee Engineer, Apprentice Engineer etc. **Examples include:**

  Engineer - Research, Development, System Engineering, Production, QA, Testing, Technical Sales, Technical Support, Installation & Commissioning etc.

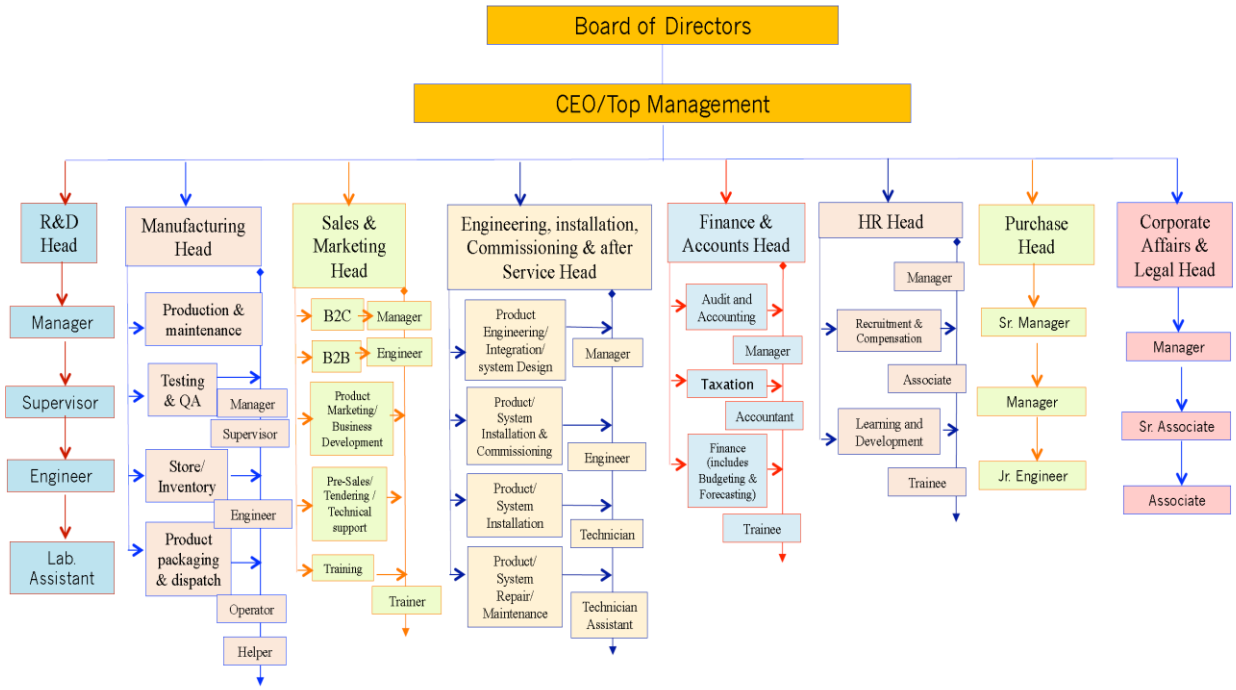
Level	Process required	Professional knowledge	Professional skill	Core skill	Responsibility
Level 5	Job that requires well developed skill, with clear choice of procedures in familiar context	Knowledge of facts, principles, processes and general concepts, in a field of work or study.	A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and	Desired mathematical skill, understanding of social, political and some skill of collecting and organising information, communication.	Responsibility for own work and learning and some responsibility for other's works and learning
Level 6	Demands wide range of specialised technical skill, clarity of knowledge and practice in broad range of activity involving standard non standard practices	Factual and theoretical knowledge in broad contexts within a field of work or study	A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study	Reasonably good in mathematical calculation, understanding of social, political sensitivities; reasonably good in data collecting organising information, and logical	Responsibility for own work and learning and full responsibility for other's works and learning
Level 7.	Requires a command of wide ranging specialised theoretical and practical skill, involving variable routine and non-routine context.	wide ranging, factual and theoretical knowledge in broad contexts within a field of work or study	Wide range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study	good logical and mathematical skill understanding of social political and natural environment good in collecting and organising information, communication and presentation skill	full responsibility for output of group and development

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10. Occupational Map of Instrumentation & Automation

Sub-sectors for OEMs

Model Organizational structure (for large companies)



TECHNOLOGIES:
PLC, SCADA, VFD, RTU, DCS, Relays, Switches, Networking, Pneumatics, Hydraulics, Vacuum Robotics, Embedded systems, Sensors, Valves, controllers, Gauges, Piping, looping, networking, Testing & Measurement, Calibration etc.

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IASC SECTOR SKILL COUNCIL

N·S·D·C National Skill Development Corporation

Part A | Part B | Part C

Abbreviations

I&C = Installation & Commissioning
O&M = Operation & Maintenance
R&D= Research & Development
S&M = Sales & Marketing
R&M = Repair & Maintenance
BD = Business Development

Legends

Top Management
Middle Management
Execution level (individual performers)

Occupation Map - Instrumentation & Automation for OEM

Occupations >>		Research & Development				Manufacturing						Sales & Marketing					Engineering, Installation, Commissioning & After Service				Finance & Accounts			Human Resource		Procure-ment	Corporate Affairs & Legal
Tracks	NSQF LEVEL	Product Research & Design	Product Development			Production & Maintenance		Testing & Quality Assurance		Stores/ Material Management/ Inventory Control	Product Packaging & Dispatches	Channel Sales (B2C)	Institutional Sales (B2B)	Product Marketing/ Business Development	Pre-Sales/ Tendering / Technical support	Training	Product Engineering/ Integration/ System Design	Product/ System I&C	Product/ System Installation	Product/ System R&M	Audit and Accounting	Taxation	Finance (includes Budgeting & Forecasting)	Recruitment & Compensation	Learning and Development	Purcase	Corporate Affairs & Legal
Management	9	Managing Director/ Chief Executive Officer/										Chief Operating Officer/ Chairman & Managining Director / Proprioter/ Partner															
	8, 9	VP/GM/Director /Head /Chief Engineer/ Chief Technology Officer Research & Product Development				Director/ President - Plant/ Operations & Maintenance						Director/ President : Sales/ Marketing/ Business Development					Director/ President - Projects/ Engineering/ Contracts/ after sales				Director/ President : Finance & Accounts			Director/ President : HR		Director/ President : HR	Director/ President Corporate Affairs/ Legal
	8	Principal Scientist / Principal Engineer / Chief Architect / R&D Manager/ Product Manager				VP/ GM-Production/ Process/ Line	VP/ GM- Maintenance		VP/ GM Testing & quality Assurance		VP/ GM: MM/ Stores	VP/ GM: Sales		VP/ GM : Marketing			VP/ GM : engineering/ system design	VP/ GM : I&C	VP/ GM : O&M	VP/ GM : Product support / Repair	VP/ GM : Accounts	VP/ GM : Taxation	VP/ GM : Finance	VP/ GM : HR		VP/ GM : Purchase	VP/ GM : Corporate Affairs / Legal
						AGM Production/ Process/ Line	AVP/ AGM - Automation	AVP/AGM - Instrumentation	AVP/AGM - Testing & Calibration	AVP/AGM - Quality Assurance	AVP/ AGM - Material Management/ Stores	AVP/ AGM - Channel Sales	AVP/ AGM - Institutional Sales / business development	AVP/ AGM - Marketing/ Business Development		AVP/AGM - Training	AVP/ AGM - engineering/ system design	AVP/ AGM - I&C	AVP/ AGM - O&M	AVP/ AGM - Product Support / Repair	AVP/ AGM - Accounts	AVP/ AGM - Taxation	AVP/ AGM - Finance	AVP/ AGM - HR	AVP/ AGM - Training	AVP/ AGM - Purchase	AVP/ AGM - Corporate Affairs Legal
Middle Management	7	Sr Engineer / Sr Scientist -Design	Program Manager - Product Development			Sr Manager Production/ Process/ Line	Sr Manager - Automation	Sr Manager - Instrumentation	Sr Manager - Testing & Calibration	Sr Manager - Quality/ Process Assurance	Sr Manager - MM/ Stores	Sr Manager - Channel Sales	Sr Manager - Channel Sales	Sr Manager : Marketing/ BD	Sr Manager- Pre-Sales/tendering/ technical support	Sr Manager - Training	Sr Manager - Engineering/ system design	Sr Manager - I&C	Sr Manager - O&M	Sr Manager - Product Support / Repair	Sr Manager - Accounts	Sr Manager - Taxation	Sr Manager - Finance	Sr Manager - HR	Manager - Training	Sr Manager - Purchase	Sr Manager - Corporate Affairs Legal
			Manager - Product Development			Manager - Production/ Process/	Manager - Automation	Manager - Instrumentation	Manager - Testing & Calibration	Manager - Quality/ Process Assurance	Manager - MM/ Stores	Manager - Channel Sales	Manager - Channel Sales	Manager : Marketing/ BD	Manager- Pre-Sales/ Tendering/ Technical support	Manager - Training	Manager - Engineering/ system design	Manager - I&C	Manager - O&M	Manager - Product Support / Repair	Manager - Accounts	Manager - Taxation	Manager - Finance	Manager - HR	Master Trainer	Manager - Purchase	Manager - Corporate Affairs / Legal
			Asstt Product Manager, Team lead, Product Incharge	Asstt Product Manager, Team lead, Product Incharge	Asstt Product Manager, Team lead, Product Incharge	Shift Incharge/ Asstt Manager - Production	Assitant Manager - Automation	Assitant Manager - Instrumentation	Asstn. Manager - Testing & Calibration	Asstn. Manager - Quality/ Process Assurance	Asstn. Manager - MM/ Stores	Asstn. Manager Packaging/ Dispatches	Asstn. Manager - Channel Sales; Zonal Manager	Asstn. Manager - Channel Sales	Asstn. Manager : Marketing/ BD	Asstn. Manager - Pre-Sales/tendering/ technical support	Sr Trainer	Asstn. Manager : Engineering/ system design	Asstn. Manager : I&C	Asstn. Manager O&M	Asstn. Manager Product Support / Repair	Asstn. Manager Accounts	Asstn. Manager Taxation	Asstn. Manager Finance	Asstn. Manager HR	Sr Trainer	Asstn. Manager Purchase	Asstn. Manager Corporate Affairs Legal
			Sr Engineer - Development	Sr Engineer - Testing	Sr Engineer - Qualification	Shift supervisor/ Sr Engineer - Production	Sr Engineer - Automation	Sr Engineer - Instrumentation	Sr Engineer - Testing / Calibration	Sr Engineer - Quality/ Process Assurance	Supervisor - MM/ Stores	Supervisor - Packaging	Sr Sales engineer/ Territory Manager	Sr Sales Engineer	Sr Engineer: Marketing/ Sales	Sr Engineer - Pre-Sales/Tendering/ Technical support	Trainer	Engineer : Engineering/ system design	Engineer- I&C	Engineer- O&M	Engineer Product Support / Repair	Jr. Manager Accounts	Jr. Manager Taxation	Jr. Manager Finance	Jr. Manager HR		Jr. Manager Purchase	Senior Legal Associate
	6	Engineer / Scientist - Design	Engineer / Scientist - Development/Prototyping	Engineer / Scientist - Testing	Engineer / Scientist - Product Qualification	Sr Operator/ Engineer - Production / Line/ Process	Engineer - Automation	Engineer - Instrumentation	Engineer - Testing / Calibration	Engineer - Quality/ Pocess Assurance	Sr MM/Stores Assistant	Sr Packaging Assistant	Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/ Trainee Engineer - Pre-Sales/Tendering/ Technical support	Jr Trainer	Assistant Engineer - Engineering/ System Design	Assistant Engineer - I&C	Assistant Engineer - O&M	Asstt Engineer - R&M	Sr Accounts Associate	Sr Taxation Associate	Sr Finance Associate	Sr HR Associate	Trainer	Sr. Purchase Officer	Legal Associate
Execution	5	Jr/Trainee Engineer /Jr Scientist - Design	Jr/Trainee Engineer /Jr Scientist - Development/Prototyping	Jr/Trainee Engineer /Jr Scientist - Testing	Jr/Trainee Engineer /Jr Scientist - Product Qualification	Operator/ Jr Engineer - Production / Line/ Process	Jr/Asstt/Trainee Engineer - Automation	Jr/Asstt/Trainee Engineer - Instrumentation	Jr/Asstt/Trainee Engineer - Testing / Calibration	Jr/Asstt/Trainee Engineer - Quality/ Pocess Assurance	MM/Stores Assistant	Packaging Assistant	Sr Sales Executive	Sr Sales Executive	Sr Sales Executive	Sr Pre Sales Executive - Pre-Sales/Tendering/ Technical support	Jr Trainer	Supervisor - Engineering/ System Design	Supervisor - I&C	Supervisor - O&M	Supervisor - R&M	Accounts Associate	Taxation Associate	Finance Associate	HR Associate	Jr Trainer	Purchase Officer	
		Sr Technician - Dev, Testing, Prototyping, Qualification	Sr Technician - Dev, Testing, Prototyping, Qualification	Sr Technician - Dev, Testing, Prototyping, Qualification	Sr Technician - Dev, Testing, Prototyping, Qualification		Sr Technician/ Supervisor - Automation	Sr Technician/ Supervisor - Instrumentation	Sr Technician/ Supervisor - Testing / Calibration	Sr Technician/ Supervisor - Quality/ Process								Sr Technician I&C	Technician - O&M	Sr Technician - R&M							
	4	Technician - Dev, Testing, Prototyping, Qualification	Technician - Dev, Testing, Prototyping, Qualification	Technician - Dev, Testing, Prototyping, Qualification	Technician - Dev, Testing, Prototyping, Qualification	Jr Operator/ Production / Line/ Process	Technician - Automation	Technician - Instrumentation	Technician - Testing / Calibration	Technician Quality/ Process Assurance	Jr MM/Stores Assistant	Jr Packaging Assistant	Sales Executive	Sales Executive	Sales Executive	Executive - Pre-Sales/ Tendering/ Tech support		Technician - Engineering/ System Design	Technician - I&C	Technician - O&M	Technician - R&M	Accounts Trainee	Taxation Trainee	Finance Trainee	HR Trainee		Purchase Assistant	
	3	Jr Technician	Jr Technician	Jr Technician	Jr Technician	Jr Technician	Jr Technician	Jr Technician	Jr Technician		Sotres Helper	Packaging Helper	Sales Assistant / Jr Sales Executive	Sales Assistant / Jr Sales Executive	Sales Assistant / Jr Sales Executive	Pre-Sales Assistant / Jr Pre-Sales Executive		Jr Technician	Jr Technician	Jr Technician	Jr Technician							
						Technician Helper	Technician Helper	Technician Helper	Technician Helper									Technician Helper	Technician Helper	Technician Helper							

A

B

C

D

Heat Map (OM - Instrumentation & Automation for OEM)

Legends: < 3% | < 5% | 15% | 25% | > 50%

Occupations >>		Research & Development				Manufacturing								Sales & Marketing					Engineering, Installation, Commissioning & After Service				Finance & Accounts			Human Resource		Procure-ment	Corporate Affairs & Legal
Tracks	NSQF LEVEL	Product Research & Design	Product Development			Production & Maintenance			Testing & Quality Assurance		Stores/ Material Management/ Inventory Control	Product Packaging & Dispatches		Channel Sales (B2C)	Institutional Sales (B2B)	Product Marketing/ Business Development	Pre-Sales/ Tendering / Technical support	Training	Product Engineering/ Integration/ System Design	Product/ System I&C	Product/ System Installation	Product/ System R&M	Audit and Accounting	Taxation	Finance (includes Budgeting & Forecasting)	Recruitment & Compensation	Learning and Development	Purcase	Corporate Affairs & Legal
Management	9	Managing Director/ Chief Executive Officer/												Chief Operating Officer/ Chairman & Managining Director /									Proprioter/ Partner						
	8,9	VP/GM/Director /Head /Chief Engineer/ Chief Technology Officer Research & Product Development				Director/ President - Plant/ Operations & Maintenance								Director/ President : Sales/ Marketing/ Business Development					Director/ President - Projects/ Engineering/ Contracts/ after sales				Director/ President : Finance & Accounts			Director/ President : HR		Director/ President : HR	Director/ President : Corporate Affairs/ Legal
	8	Principal Scientist / Principal Engineer / Chief Architect / R&D Manager/ Product Manager				AGM Production/ Process/ Line	VP/GM- Production/ Process/ Line	VP/GM- Maintenance	VP/GM Testing & quality Assurance		VP/GM: MM/ Stores	VP/GM: Packaging/ Dispatches		AVP/ AGM - Channel Sales	VP/GM: Sales	AVP/ AGM - Marketing/ Business Development		AVP/ AGM - Training	AVP/ AGM - engineering/ system design	VP/GM : I&C	VP/GM : O&M	VP/GM : Product support / Repair	VP/GM : Accounts	VP/GM : Taxation	VP/GM : Finance	VP/GM : HR		VP/GM : Purchase	VP/GM : Corporate Affairs / Legal
						AVP/ AGM - Production/ Process/ Line	AVP/ AGM - Automation	AVP/AGM - Instrumnetation	AVP/AGM - Testing & Calibration	AVP/AGM - Quality Assurance	AVP/ AGM - Material Management/ Stores	AVP/AGM - Packaging / Dispatches		AVP/ AGM - Channel Sales	AVP/ AGM - Institutional Sales / business development	AVP/ AGM - Marketing/ Business Development		AVP/AGM - Training	AVP/ AGM - engineering/ system design	AVP/ AGM - I&C	AVP/ AGM - O&M	AVP/ AGM - Product Support / Repair	AVP/ AGM - Accounts	AVP/ AGM - Taxation	AVP/ AGM - Finance	AVP/ AGM - HR	AVP/ AGM - Training	AVP/ AGM - Purchase	AVP/ AGM - Corporate Affairs / Legal
Middle Management	7	Sr Engineer / Sr Scientist -Design	Program Manager - Product Development			Sr Manager Production/ Process/ Line	Sr Manager - Automation	Sr Manager - Instrumnetation	Sr Manager - Testing & Calibration	Sr Manager - Quality/ Process Assurance	Sr Manager - MM/ Stores	Sr Manager Packaging/ Dispatches		Sr Manager - Channel Sales	Sr Manager - Channel Sales	Sr Manager : Marketing/ BD	Sr Manager- Pre-Sales/tendering/ technical support	Sr Manager - Training	Sr Manager - Engineering/ system design	Sr Manager - I&C	Sr Manager - O&M	Sr Manager - Product Support / Repair	Sr Manager - Accounts	Sr Manager - Taxation	Sr Manager - Finance	Sr Manager - HR	Manager - Training	Sr Manager - Purchase	Sr Manager - Corporate Affairs / Legal
			Manager - Product Development			Manager - Production/ Process/ Line	Manager - Automation	Manager - Instrumnetation	Manager - Testing & Calibration	Manager - Quality/ Process Assurance	Manager - MM/ Stores	Manager Packaging/ Dispatches		Manager - Channel Sales	Manager - Channel Sales	Manager : Marketing/ BD	Manager- Pre-Sales/ Tendering/ Technical support	Manager - Training	Manager - Engineering/ system design	Manager - I&C	Manager - O&M	Manager - Product Support / Repair	Manager - Accounts	Manager - Taxation	Manager - Finance	Manager - HR	Master Trainer	Manager - Purchase	Manager - Corporate Affairs / Legal
			Sr Engineer - Development	Sr Engineer - Testing	Sr Engineer - Qualification	Shift Incharge/ Asstt Manager - Production	Assitant Manager - Automation	Assitant Manager - Instrumnetation	Asstn. Manager - Testing & Calibration	Asstn. Manager - Quality/ Process Assurance	Asstn. Manager - MM/ Stores	Asstn. Manager Packaging/ Dispatches		Asstn. Manager - Channel Sales; Zonal Manager	Asstn. Manager - Channel Sales	Asstn. Manager : Marketing/ BD	Asstn. Manager - Pre-Sales/tendering/ technical support	Sr Trainer	Asstn. Manager : Engineering/ system design	Asstn. Manager : I&C	Asstn. Manager O&M	Asstn. Manager Product Support / Repair	Asstn. Manager Accounts	Asstn. Manager Taxation	Asstn. Manager Finance	Asstn. Manager HR	Sr Trainer	Asstn. Manager Purchase	Asstn. Manager Corporate Affairs / Legal
			Sr Engineer - Dev/ Testing/ Qualification	Sr Engineer - Dev/ Testing/ Qualification	Sr Engineer - Dev/ Testing/ Qualification	Shift supervisor/ Sr Engineer - Production	Sr Engineer - Automation	Sr Engineer - Instrumnetation	Sr Engineer - Testing / Calibration	Sr Engineer - Quality/ Process Assurance	Supervisor - MM/ Stores	Supervisor - Packaging		Sr Sales engineer/ Territory Manager	Sr Sales Engineer	Sr Engineer: Marketing/ Sales	Sr Engineer - Pre-Sales/Tendering/ Technical support	Trainer	Engineer : Engineering/ system design	Engineer- I&C	Engineer- O&M	Engineer Product Support / Repair	Jr. Manager Accounts	Jr. Manager Taxation	Jr. Manager Finance	Jr. Manager HR		Jr. Manager Purchase	Senior Legal Associate
	6	Engineer / Scientist - Design	Engineer / Scientist - Development/Prototyping	Engineer / Scientist - Testing	Engineer / Scientist - Product Qualification	Sr Operator/ Engineer - Production / Line/ Process	Engineer - Automation	Engineer - Instrumnetation	Engineer - Testing / Calibration	Engineer - Quality/ Pocess Assurance	Sr MM/Stores Assistant	Sr Packaging Assistant		Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/ Trainee Engineer - Pre-Sales/Tendering/ Technical support	Jr Trainer	Assistant Engineer - Engineering/ System Design	Assistant Engineer - I&C	Assistant Engineer - O&M	Asstt Engineer - R&M	Sr Accounts Associate	Sr Taxation Associate	Sr Finance Associate	Sr HR Associate	Trainer	Sr. Purchase Officer	Legal Associate
Execution	5	Jr/Trainee Engineer /Jr Scientist - Design	Jr/Trainee Engineer /Jr Scientist - Development/Prototyping	Jr/Trainee Engineer /Jr Scientist - Testing	Jr/Trainee Engineer /Jr Scientist - Product Qualification	Operator/ Jr Engineer - Production / Line/ Process	Jr/Asstt/Trainee Engineer - Automation	Jr/Asstt/Trainee Engineer - Instrumnetation	Jr/Asstt/Trainee Engineer - Testing / Calibration	Jr/Asstt/Trainee Engineer - Quality/ Pocess Assurance	MM/Stores Assistant	Packaging Assistant		Sr Sales Executive	Sr Sales Executive	Sr Sales Executive	Sr Pre Sales Executive - Pre-Sales/Tendering/ Technical support	Jr Trainer	Supervisor - Engineering/ System Design	Supervisor - I&C	Supervisor - O&M	Supervisor - R&M	Accounts Associate	Taxation Associate	Finance Associate	HR Associate	Jr Trainer	Purchase Officer	
		Sr Technician - Dev, Testing, Prototyping, Qualification	Sr Technician - Dev, Testing, Prototyping, Qualification	Sr Technician - Dev, Testing, Prototyping, Qualification	Sr Technician - Dev, Testing, Prototyping, Qualification		Sr Technician/ Supervisor - Automation	Sr Technician/ Supervisor - Instrumnetation	Sr Technician/ Supervisor - Testing / Calibration	Sr Technician/ Supervisor - Quality/ Process									Sr Technician I&C	Sr Technician O&M	Sr Technician R&M							
	4	Technician - Dev, Testing, Prototyping, Qualification	Technician - Dev, Testing, Prototyping, Qualification	Technician - Dev, Testing, Prototyping, Qualification	Technician - Dev, Testing, Prototyping, Qualification	Jr Operator Production / Line/ Process	Technician - Automation	Technician - Instrumnetation	Technician - Testing / Calibration	Technician Quality/ Process Assurance	Jr MM/Stores Assistant	Jr Packaging Assistant		Sales Executive	Sales Executive	Sales Executive	Executive - Pre-Sales/ Tendering/ Tech support		Technician - Engineering/ System Design	Technician - I&C	Technician - O&M	Technician - R&M	Accounts Trainee	Taxation Trainee	Finance Trainee	HR Trainee		Purchase Assistant	
	3	Jr Technician	Jr Technician	Jr Technician	Jr Technician	Jr Technician	Jr Technician	Jr Technician	Jr Technician		Sotres Helper	Packaging Helper		Sales Assistant / Jr Sales Executive	Sales Assistant / Jr Sales Executive	Sales Assistant / Jr Sales Executive	Pre-Sales Assistant / Jr Pre-Sales Executive		Jr Technician	Jr Technician	Jr Technician	Jr Technician							
						Technician Helper	Technician Helper	Technician Helper	Technician Helper											Technician Helper	Technician Helper	Technician Helper							

The OM is split into four parts 'A', 'B', 'C' &D for readability

and shown in next four pages

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Occupations >>		Research & Development				Manufacturing						
Tracks	NSQF LEVEL	Product Research & Design	Product Development			Production & Maintenance			Testing & Quality Assurance		Stores/ Material Management/ Inventory Control	Product Packaging & Dispatches
Management	9	Managing Director/ Chief Executive Officer/										
	8,9	VP/GM/Director /Head /Chief Engineer/ Chief Technology Officer Research & Product Development				Director/ President - Plant/ Operations & Maintenance						
	8					VP/ GM-Production/ Process/ Line	VP/ GM- Maintenance		VP/ GM Testing & quality Assurance		VP/ GM: MM/ Stores	
		Principal Scientist / Principal Engineer / Chief Architect / R&D Manager/ Product Manager				AGM Production/ Process/ Line	AVP/ AGM - Automation	AVP/AGM - Instrumnetation	AVP/AGM - Testing & Calibration	AVP/AGM - Quality Assurance	AVP/ AGM - Material Management/ Stores	AVP/AGM - Packaging / Dispatches
Middle Management	7	Sr Engineer / Sr Scientist -Design	Program Manager - Product Development			Sr Manager Production/ Process/ Line	Sr Manager - Automation	Sr Manager - Instrumentation	Sr Manager - Testing & Calibration	Sr Manager - Quality/ Process Assurance	Sr Manager - MM/ Stores	Sr Manager Packaging/ Dispatches
			Manager - Product Development			Manager - Production/ Process/ Line	Manager - Automation	Manager - Instrumentation	Manager - Testing & Calibration	Manager - Quality/ Process Assurance	Manager - MM/ Stores	Manager Packaging/ Dispatches
			Asstt Product Manager, Team lead, Product Incharge	Asstt Product Manager, Team lead, Product Incharge	Asstt Product Manager, Team lead, Product Incharge	Shift Incharge/ Asstt Manager - Production	Assitant Manager - Automation	Assitant Manager - Instrumentation	Asttn. Manager - Testing & Calibration	Asttn. Manager - Quality/ Process Assurance	Asttn. Manager - MM/ Stores	Asttn. Manager Packaging/ Dispatches
			Sr Engineer - Development	Sr Engineer - Testing	Sr Engineer - Qualification	Shift supervisor/ Sr Engineer - Production	Sr Engineer - Automation	Sr Engineer - Instrumentation	Sr Engineer - Testing / Calibration	Sr Engineer - Quality/ Process Assurance	Supervisor - MM/ Stores	Supervisor - Packaging
	6	Engineer / Scientist - Design	Engineer / Scientist - Development/Prototyping	Engineer / Scientist - Testing	Engineer / Scientist - Product Qualification	Sr Operator/ Engineer - Production / Line/ Process	Engineer - Automation	Engineer - Instrumentation	Engineer - Testing / Calibration	Engineer - Quality/ Pocess Assurance	Sr MM/Stores Assistant	Sr Packaging Assistant

Occupations >>		Research & Development				Manufacturing						
Tracks	NSQF LEVEL	Product Research & Design	Product Development		B	Production & Maintenance		Testing & Quality Assurance		Stores/ Material Management/ Inventory Control	Product Packaging & Dispatches	
Execution	5	Jr/Trainee Engineer /Jr Scientist - Design	Jr/Trainee Engineer /Jr Scientist - Development/Prototyping	Jr/Trainee Engineer /Jr Scientist - Testing	Jr/Trainee Engineer /Jr Scientist - Product Qualification	Operator/ Jr Engineer - Production / Line/ Process	Jr/Asstt/Trainee Engineer - Automation	Jr/Asstt/Trainee Engineer - Instrumentation	Jr/Asstt/Trainee Engineer - Testing / Calibration	Jr/Asstt/Trainee Engineer - Quality/ Process Assurance	MM/Stores Assistant	Packaging Assistant
		Sr Technician - Dev, Testing, Prototyping, Qualification	Sr Technician - Dev, Testing, Prototyping, Qualification	Sr Technician - Dev, Testing, Prototyping, Qualification	Sr Technician - Dev, Testing, Prototyping, Qualification		Sr Technician/ Supervisor - Automation	Sr Technician/ Supervisor - Instrumentation	Sr Technician/ Supervisor - Testing / Calibration	Sr Technician/ Supervisor - Quality/ Process		
	4	Technician - Dev, Testing, Prototyping, Qualification	Technician - Dev, Testing, Prototyping, Qualification	Technician - Dev, Testing, Prototyping, Qualification	Technician - Dev, Testing, Prototyping, Qualification	Jr Operator Production / Line/ Process	Technician - Automation	Technician - Instrumentation	Technician - Testing / Calibration	Technician Quality/ Process Assurance	Jr MM/Stores Assistant	Jr Packaging Assistant
	3	Jr Technician	Jr Technician	Jr Technician	Jr Technician	Jr Technician	Jr Technician	Jr Technician	Jr Technician		Sotres Helper	Packaging Helper
						Technician Helper	Technician Helper	Technician Helper	Technician Helper			

Occupations >>		Sales & Marketing					Engineering, Installation, Commissioning & After Service				Finance & Accounts			Human Resource		Procure-ment	Corporate Affairs & Legal
Tracks	NSQF LEVEL	Channel Sales (B2C)	Institutional Sales (B2B)	Product Marketing/ Business Development	Pre-Sales/ Tendering / Technical support	Training	Product Engineering/ Integration/ System Design	Product/ System I&C	Product/ System Installation	Product/ System R&M	Audit and Accounting	Taxation	Finance (includes Budgeting & Forecasting)	Recruitment & Compensation	Learning and Development	Purcase	Corporate Affairs & Legal
Management	9	Chief Operating Officer/ Chairman & Managining Director / Proprioter/ Partner															
	8, 9	Director/ President : Sales/ Marketing/ Business Development					Director/ President - Projects/ Engineering/ Contracts/ after sales				Director/ President : Finance & Accounts			Director/ President : HR		Director/ President : HR	Director/ President : Corporate Affairs/ Legal
	8	VP/ GM: Sales		VP/ GM : Marketing			VP/ GM : engineering / system design	VP/ GM : I&C	VP/ GM : O&M	VP/ GM : Product support / Repair	VP/ GM : Accounts	VP/ GM : Taxation	VP/ GM : Finance	VP/ GM : HR		VP/ GM : Purchase	VP/ GM : Corporate Affairs / Legal
		AVP/ AGM - Channel Sales	AVP/ AGM - Institutional Sales / business development	AVP/ AGM - Marketing/ Business Development		AVP/AGM - Training	AVP/ AGM - engineering / system design	AVP/ AGM - I&C	AVP/ AGM - O&M	AVP/ AGM - Product Support / Repair	AVP/ AGM - Accounts	AVP/ AGM - Taxation	AVP/ AGM - Finance	AVP/ AGM - HR	AVP/ AGM - Training	AVP/ AGM - Purchase	AVP/ AGM - Corporate Affairs / Legal
Middle Management	7	Sr Manager - Channel Sales	Sr Manager - Channel Sales	Sr Manager : Marketing/ BD	Sr Manager- Pre-Sales/tendering/ technical support	Sr Manager - Training	Sr Manager - Engineering/ system design	Sr Manager - I&C	Sr Manager - O&M	Sr Manager - Product Support / Repair	Sr Manager - Accounts	Sr Manager - Taxation	Sr Manager - Finance	Sr Manager - HR	Manager - Training	Sr Manager - Purchase	Sr Manager - Corporate Affairs / Legal
		Manager - Channel Sales	Manager - Channel Sales	Manager : Marketing/ BD	Manager- Pre-Sales/ Tendering/ Technical support	Manager - Training	Manager - Engineering/ system design	Manager - I&C	Manager - O&M	Manager - Product Support / Repair	Manager - Accounts	Manager - Taxation	Manager - Finance	Manager - HR	Master Trainer	Manager - Purchase	Manager - Corporate Affairs / Legal
		Asstn. Manager - Channel Sales; Zonal Manager	Asstn. Manager - Channel Sales	Asttn. Manager : Marketing/ BD	Asstn. Manager - Pre-Sales/tendering/ technical support	Sr Trainer	Asttn. Manager : Engineering/ system design	Asttn. Manager : I&C	Asttn. Manager O&M	Asttn. Manager Product Support / Repair	Asttn. Manager Accounts	Asttn. Manager Taxation	Asttn. Manager Finance	Asttn. Manager HR	Sr Trainer	Asttn. Manager Purchase	Asttn. Manager Corporate Affairs / Legal
		Sr Sales engineer/ Territory Manager	Sr Sales Engineer	Sr Engineer: Marketing/ Sales	Sr Engineer - Pre-Sales/Tendering/ Technical support	Trainer	Engineer : Engineering/ system design	Engineer- I&C	Engineer- O&M	Engineer Product Support / Repair	Jr. Manager Accounts	Jr. Manager Taxation	Jr. Manager Finance	Jr. Manager HR		Jr. Manager Purchase	Senior Legal Associate
	6	Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/ Trainee Engineer - Pre-Sales/Tendering/ Technical support	Jr Trainer	Assistant Engineer - Engineering/ System Design	Assistant Engineer - I&C	Assistant Engineer - O&M	Asstt Engineer - R&M	Sr Accounts Associate	Sr Taxation Associate	Sr Finance Associate	Sr HR Associate	Trainer	Sr. Purchase Officer	Legal Associate

		Sales & Marketing				D	Engineering, Installation, Commissioning & After Service				Finance & Accounts			Human Resource		Procure-ment	Corporate Affairs & Legal
		Channel Sales (B2C)	Institutional Sales (B2B)	Product Marketing/ Business Development	Pre-Sales/ Tendering / Technical support	Training	Product Engineering/ Integration/ System Design	Product/ System I&C	Product/ System Installation	Product/ System R&M	Audit and Accounting	Taxation	Finance (includes Budgeting & Forecasting)	Recruitment & Compensation	Learning and Development	Purcase	Corporate Affairs & Legal
Execution	5	Sr Sales Executive	Sr Sales Executive	Sr Sales Executive	Sr Pre Sales Executive - Pre-Sales/Tendering/ Technical support	Jr Trainer	Supervisor - Engineering/ System Design	Supervisor - I&C	Supervisor - O&M	Supervisor R&M	Accounts Associate	Taxation Associate	Finance Associate	HR Associate	Jr Trainer	Purchase Officer	
								Sr Technician I&C	Sr Technician O&M	Sr Technician R&M							
	4	Sales Executive	Sales Executive	Sales Executive	Executive - Pre-Sales/ Tendering/ Tech support		Technician - Engineering/ System Design	Technician - I&C	Technician - O&M	Technician - R&M	Accounts Trainee	Taxation Trainee	Finance Trainee	HR Trainee		Purchase Assistant	
	3	Sales Assistant / Jr Sales Executive	Sales Assistant / Jr Sales Executive	Sales Assistant / Jr Sales Executive	Pre-Sales Assistant / Jr Pre-Sales Executive		Jr Technician	Jr Technician	Jr Technician	Jr Technician							
								Technician Helper	Technician Helper	Technician Helper							

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11. Job Roles in I&A Sub-sectors for OEMs

Major Roles Related to OEMs in the I&A segment

Listed below are roles which comprise key skills related to original equipment manufacturers in the instrumentation and automation. Other roles relating to higher management and supporting functions such as finance, administration, purchase, HR and corporate affairs are not included - although these are identified in the OM. The job role identification is based on industry interaction, feedback and data received from various emails, visits and questionnaires.

Job Roles in general have Junior, Assistant, Senior classifications which convey their depth of knowledge and skills in the occupation. These have not been expanded in the following list, in the interest of clarity.

QPs have been defined for the highlighted Job Roles and presented in this QRC.

Statistics : Total 112

A&T	35
D&D	29
Cal	2
I&C	6
O&M	5
R&M	14
Sup	6
S&M	6
Purchase	8

Sl.	Job Role	Segment	Occupation	NSQF Level	Entry Level (Y/N)
1	Automation Assembly & Test Supervisor	Automation	A&T	5	N
2	Automation Quality Assurance Supervisor	Automation	A&T	5	N
3	PCB Assembly Technician	I&A	A&T	3	Y
4	PCB Soldering Technician	I&A	A&T	3	Y
5	Automated PCB Assembly Operator	I&A	A&T	4	Y
6	PCB Test Technician	I&A	A&T	4	Y
7	Module Assembly & Wiring Technician	I&A	A&T	4	N
8	Module Test Technician	I&A	A&T	4	Y
9	Product / System Assembly Technician	I&A	A&T	4	Y
10	Product / System Test Technician	I&A	A&T	4	Y
11	Firmware Programmer / Software Programmer	I&A	A&T	4	Y
12	Firmware Tester / Software Tester	I&A	A&T	4	Y
13	Environmental Test / Life Test Technician	I&A	A&T	4	N
14	QA Technician	I&A	A&T	4	Y
15	Rework Technician	I&A	A&T	4	N
16	Rework Tester	I&A	A&T	4	Y
17	Salvage Technician	I&A	A&T	4	Y
18	Mechatronics Technician	I&A	A&T	4	N

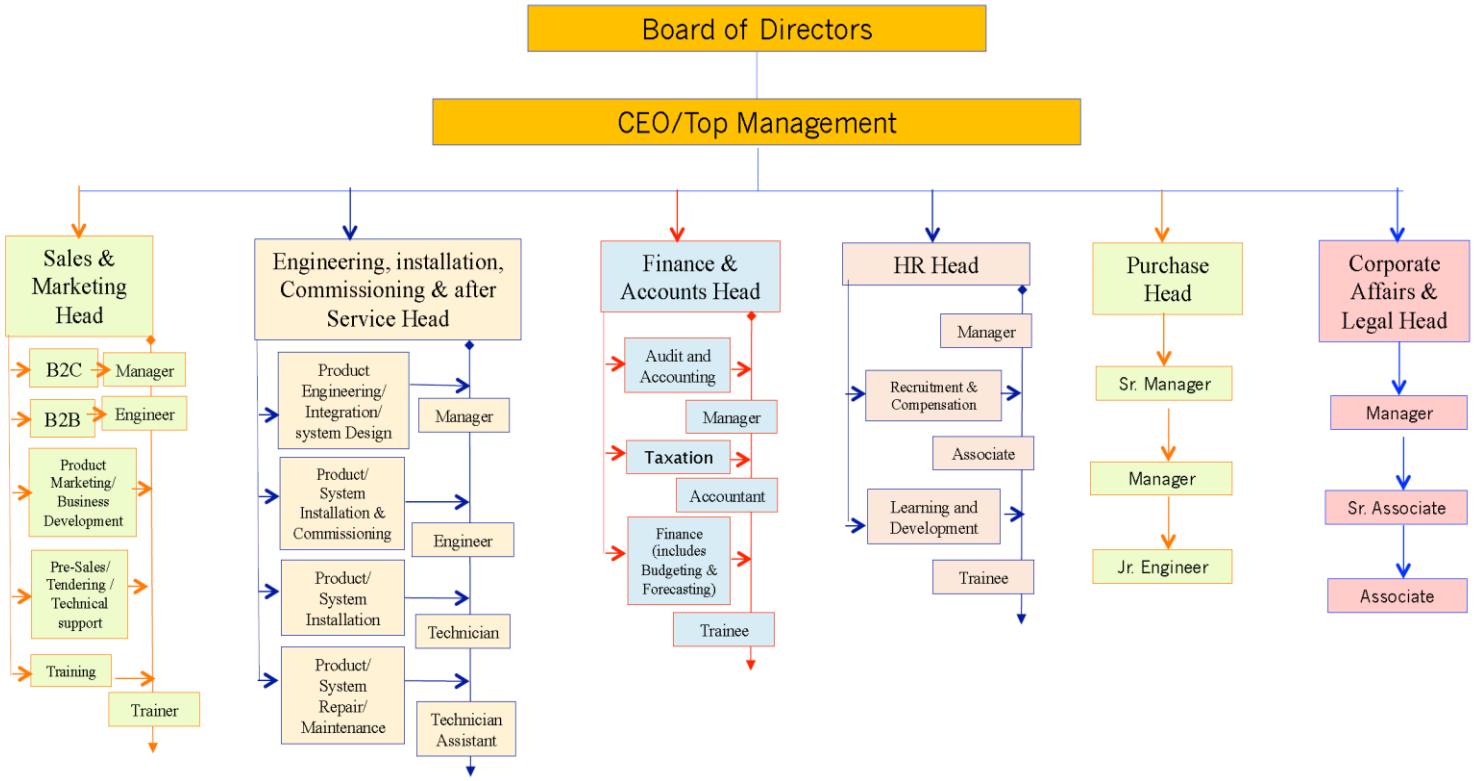
19	Robotics Technician	I&A	A&T	4	N
20	Software Programmer	I&A	A&T	4	Y
21	Senior PCB Test Technician	I&A	A&T	5	N
22	Automated Testing Engineer	I&A	A&T	5	Y
23	Environmental Test / Life Test Supervisor	I&A	A&T	5	N
24	QA Supervisor	I&A	A&T	5	N
25	Environment and Data Management Engineer	I&A	A&T	5	Y
26	Rework Supervisor	I&A	A&T	5	N
27	Assembly Line Supervisor	I&A	A&T	5	N
28	Mechatronics Supervisor	I&A	A&T	5	N
29	Robotics Supervisor	I&A	A&T	5	N
30	Waste Management Engineer	I&A	A&T	6	Y
31	Module Test Engineer	I&A	A&T	7	N
32	Product / System Test Engineer	I&A	A&T	7	N
33	QA Engineer	I&A	A&T	7	N
34	Mechatronics Engineer	I&A	A&T	7	N
35	Robotics Engineer	I&A	A&T	7	N
36	Assembly Line Manager	I&A	A&T	7	N
37	Test Manager	I&A	A&T	7	N
38	Software Manager	I&A	A&T	7	N
39	Calibration Technician (Multi Skill)	I&A	Calibration	4	Y
40	Calibration Supervisor	I&A	Calibration	5	Y
41	PCB & Module Assembly Technician	I&A	D&D	4	Y
42	PCB & Module Test Technician	I&A	D&D	4	Y
43	Software Tester	I&A	D&D	4	Y
44	Software Developer	I&A	D&D	5	Y
45	Automated Testing Design Engineer	I&A	D&D	5	Y
46	Engineer, Design	I&A	D&D	6	Y
47	Engineer, Prototyping	I&A	D&D	6	Y
48	Engineer, Testing	I&A	D&D	6	Y
49	Engineer, UI & Ergonomics	I&A	D&D	6	Y
50	Engineer, Packaging	I&A	D&D	6	Y
51	Engineer, Vendor Development	I&A	D&D	6	Y
52	Engineer, Firmware Design & Programming	I&A	D&D	6	Y
53	Engineer, Software Development	I&A	D&D	6	Y
54	Software Test Engineer	I&A	D&D	6	Y
55	Software Designer	I&A	D&D	6	Y
56	Systems Engineer	I&A	D&D	7	N
57	Product Architect	I&A	D&D	7	N
58	Embedded System Architect	I&A	D&D	7	N
59	Product QA Engineer	I&A	D&D	7	N
60	Development Test & QA Manager	I&A	D&D	7	N
61	Development Manager	I&A	D&D	8	N
62	Software Development Manager	I&A	D&D	8	N
63	Embedded System Tester	I&A	D&D, A&T	5	Y
64	Environmental Test / Life Test Engineer	I&A	D&D, A&T	5	Y
65	Documentation Manager	I&A	D&D, A&T	7	N
66	Hardware/Firmware Manager	I&A	D&D, A&T	7	N
67	Calibration Engineer/ Scientist	I&A	D&D, A&T, Cal	6	N
68	Automation Programmer (PLC/HMI/Drive)	Automation	I&C	4	Y
69	SCADA Technician - Installation & Commissioning	Automation	I&C	4	Y
70	SCADA Programmer	Automation	I&C	4	Y

71	SCADA Trouble Shooter	Automation	I&C	4	N
72	Automation Troubleshooter (PLC/HMI/Drive)	Automation	I&C	5	N
73	**Automation Solution Engineer**	**Automation**	**I&C, A&T, D&D**	**5**	Y
74	Instrumentation Technician (One or more skills: Thermal, Electro-Technical, Mechanical, Pressure/Level/Flow)	I&A	O&M	4	N
75	**Instrumentation Technician (Control Valves)**	**I&A**	**O&M**	**4**	**N**
76	Instrumentation Technician (One or more skills: Pneumatic/ Hydraulic/ Vacuum)	I&A	O&M	4	N
77	Instrumentation Technician (Mechatronic/ Robotic)	I&A	O&M	4	N
78	Instrumentation Technician (Hazardous Environment/ Intrinsic Safety)	I&A	O&M	4	N
79	Vendor Development Officer (Technical)	I&A	Purchase	5	Y
80	Vendor Development Engineer (Technical)	I&A	Purchase	6	N
81	Procurement Officer (Technical)	I&A	Purchase	6	N
82	Purchase Manager	I&A	Purchase	7	N
83	Vendor Development Manager	I&A	Purchase	7	N
84	Procurement Engineer (Technical)	I&A	Purchase	7	N
85	Automation Technician - Repair & Maintenance (PLC/HMI/Drive)	Automation	R&M	4	Y
86	VFD Repair Technician	Automation	R&M	4	N
87	PLC Repair Technician	Automation	R&M	4	N
88	HMI Repair Technician	Automation	R&M	4	N
89	**Embedded Instrumentation Engineer**	**I&A**	**R&M, D&D, A&T**	**5**	**Y**
90	Jr Technician - Repair	I&A	Repair	3	Y
91	Technician Helper - Repair	I&A	Repair	3	Y
92	Technician - Repair	I&A	Repair	4	N
93	Asstt Manager - Product Support / Repair	I&A	Repair	5	N
94	Asstt Engineer - Repair	I&A	Repair	5	N
95	Supervisor - Repair	I&A	Repair	5	N
96	Sr Technician - Repair	I&A	Repair	5	N
97	Manager - Product Support / Repair	I&A	Repair	6	N
98	Engineer - Product Support / Repair	I&A	Repair	6	N
99	Sr Pre-Sales Assistant	I&A	S&M	4	Y
100	Pre-Sales Assistant / Jr Pre-Sales Executive	I&A	S&M	4	Y
101	Technical Sales Assistant	I&A	S&M	4	Y
102	Technical Sales Asstt. Manager	I&A	S&M	6	Y
103	Marketing Manager	I&A	S&M	6	N
104	Technical Sales Manager	I&A	S&M	7	N
105	Sr. Engineer Pre-Sales/ Tendering/ Technical Support	I&A	S&M	7	N
106	Engineer / Specialist - Pre-Sales/ Tendering/ Technical Support	I&A	S&M	7	N
107	Technical Support Assistant	I&A	Tech Sup	4	Y
108	Customer Support Assistant	I&A	Tech Sup	4	Y
109	Technical Support Specialist/Executive/ Asstt Engineer	I&A	Tech Sup	5	N
110	Customer Support Specialist/Executive	I&A	Tech Sup	5	N
111	Customer Support Engineer	I&A	Tech Sup	5	Y
112	Technical Support Manager	I&A	Tech Sup	7	N

BACK

12. Occupational Map of Instrumentation & Automation Sub-sectors for System Integrators (SI)

Model Organizational structure (for large companies)



TECHNOLOGIES:
PLC, SCADA, VFD, RTU, DCS, Relays, Switches, Networking, Pneumatics, Hydraulics, Vacuum Robotics, Embedded systems, Sensors, Valves, controllers, Gauges, Piping, looping, networking, Testing & Measurement, Calibration etc.

BACK

IASC SECTOR SKILL COUNCIL

N·S·D·C National Skill Development Corporation

Abbreviations

I&C = Installation & Commissioning
O&M = Operation & Maintenance
R&D= Research & Development
S&M = Sales & Marketing
R&M = Repair & Maintenance
BD = Business Development

Legends

Top Management
Middle Management
Execution level (individual performers)

Occupation Map - Instrumentation & Automation for SI

Occupations	>>	Sales & Marketing					Engineering, Installation, Commissioning, Operations & After Service				Finance & Accounts			Human Resource		Procure-ment	Corporate Affairs & Legal
Tracks	NSQF LEVEL	Channel Sales (B2C)	Institutional Sales (B2B)	Product Marketing/ Business Development	Pre-Sales/ Tendering / Technical support	Training	Product Engineering/ System Design	Product/ System I&C	Product/ System O&M	Product/ System R&M	Audit and Accounting	Taxation	Finance (includes Budgeting & Forecasting)	Recruitment & Compensation	Learning and Development	Purchase	Corporate Affairs & Legal
Management	8,9	Director/ President : Sales/ Marketing/ Business Development					Director/ President - Projects/ Engineering/ Contracts/ After Sales				Director/ President : Finance & Accounts			Director/ President : HR		Director/ President : HR	Director/ President : Corporate Affairs/ Legal
		VP/ GM: Sales		VP/ GM : Marketing			VP/ GM : Engineering/ System Design	VP/ GM : I&C	VP/ GM : O&M	VP/ GM : Product support / Repair	VP/ GM : Accounts	VP/ GM : Taxation	VP/ GM : Finance	VP/ GM : HR	VM/GM Training	VP/ GM : Purchase	VP/ GM : Corporate Affairs / Legal
	8	AVP/ AGM: Channel Sales	AVP/ AGM: Institutional Sales / Business Development	AVP/ AGM: Marketing/ Business Development		AVP/AGM - S&M Training	AVP/ AGM : Engineering/ System Design	AVP/ AGM : I&C	AVP/ AGM : O&M	AVP/ AGM : Support & Repair	AVP/ AGM : Accounts	AVP/ AGM : Taxation	AVP/ AGM : Finance	AVP/ AGM : HR	AVP/ AGM : Training	AVP/ AGM : Purchase	AVP/ AGM : Corporate Affairs / Legal
Middle Management	7	Sr. Manager: Channel Sales	Sr. Manager: Channel Sales	Sr. Manager : Marketing/ BD	Sr. Manager- Pre Sales/ Tendering/ Technical Support	Sr. Manager - S&M Training	Sr. Manager - Engineering & System Design	Sr. Manager - I&C	Sr. Manager - O&M	Sr. Manager - Support & Repair	Sr. Manager - Accounts	Sr. Manager - Taxation	Sr. Manager - Finance	Sr. Manager - HR	Manager - Training	Sr. Manager - Purchase	Sr. Manager - Corporate Affairs / Legal
		Manager: Channel Sales	Manager: Channel Sales	Manager : Marketing/ BD	Manager - Pre Sales/ Tendering/ Technical Support	Manager - S&M Training	Manager - Engineering/ & System Design	Manager - I&C	Manager - O&M	Manager Support & Repair	Manager - Accounts	Manager - Taxation	Manager - Finance	Manager - HR	Master Trainer	Manager - Purchase	Manager - Corporate Affairs / Legal
		Asstn. Manager: Channel Sales; Zonal Manager	Asstn. Manager: Channel Sales	Asttn. Manager : Marketing/ BD	Asst. Mgr: Pre Sales/ Tendering/ Technical Support	Sr. S&M Trainer	Sr Engineer Systems/ Design/Hardware /Firmware/ Software/ Programming	Asttn. Manager I&C / Sr. Engineer I&C	Asttn. Manager O&M / Sr. Engineer-O&M	Asttn. Manager Support & Repair / Engineer Support & Repair	Manager - Accounts	Asttn. Manager Taxation	Asttn. Manager Finance	Asttn. Manager HR	Sr. Trainer	Asttn. Manager Purchase	Asttn. Manager Corporate Affairs / Legal
		Sr. Sales Engineer/ Territory Manager	Sr. Sales Engineer	Sr. Engineer: Marketing/ Sales	Sr. Engineer: Pre Sales/ Tendering/ Technical Support						Asttn. Manager Accounts	Jr. Manager Taxation	Jr. Manager Finance	Jr. Manager HR		Jr. Manager Purchase	Senior Legal Associate
	6	Sales Executive / Engineer	Sales Executive / Engineer	Sales Executive / Engineer	Sales Executive / Engineer	S&M Trainer	Engineer Systems/ Design/Hardware /Firmware/ Software/ Programming	Sr Supervisor/ Engineer I&C	Sr Supervisor/ Engineer O&M	Sr Supervisor/ Engineer R&M	Jr. Manager Accounts	Sr. Taxation Associate	Sr. Finance Associate	Sr. HR Associate	Trainer	Sr. Purchase Officer	Legal Associate
Execution	5	Jr/Asstt/Trainee Engineer -Pre Sales	Jr/Asstt/Trainee Engineer -Pre Sales	Jr/Asstt/Trainee Engineer -Pre Sales	Jr/Asstt/Trainee Engineer / Specialist - Pre-Sales/ Tendering/ Tech Support	Jr S&M Trainer	Jr /Asstt / Trainee Engineer System Design	Supervisor I&C	Supervisor O&M	Supervisor R&M	Sr. Accounts Associate	Taxation Associate	Finance Associate	HR Associate	Jr Trainer	Purchase Officer	Assistant Legal Associate
		Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive			Sr Technician I&C	Sr Technician O&M	Sr Technician R&M							
	4	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive			Technician I&C	Technician O&M	Technician R&M	Accounts Associate	Taxation Associate	Finance Associate	HR Associate		Purchase Assistant	
	3							Jr / Asstt Technician C&I	Jr / Asstt Technician O&M	Jr / Asstt Technician	Accounts Trainee	Taxation Trainee	Finance Trainee	HR Trainee			

A

B

C

D

Heat Map (OM - Instrumentation & Automation for SI)

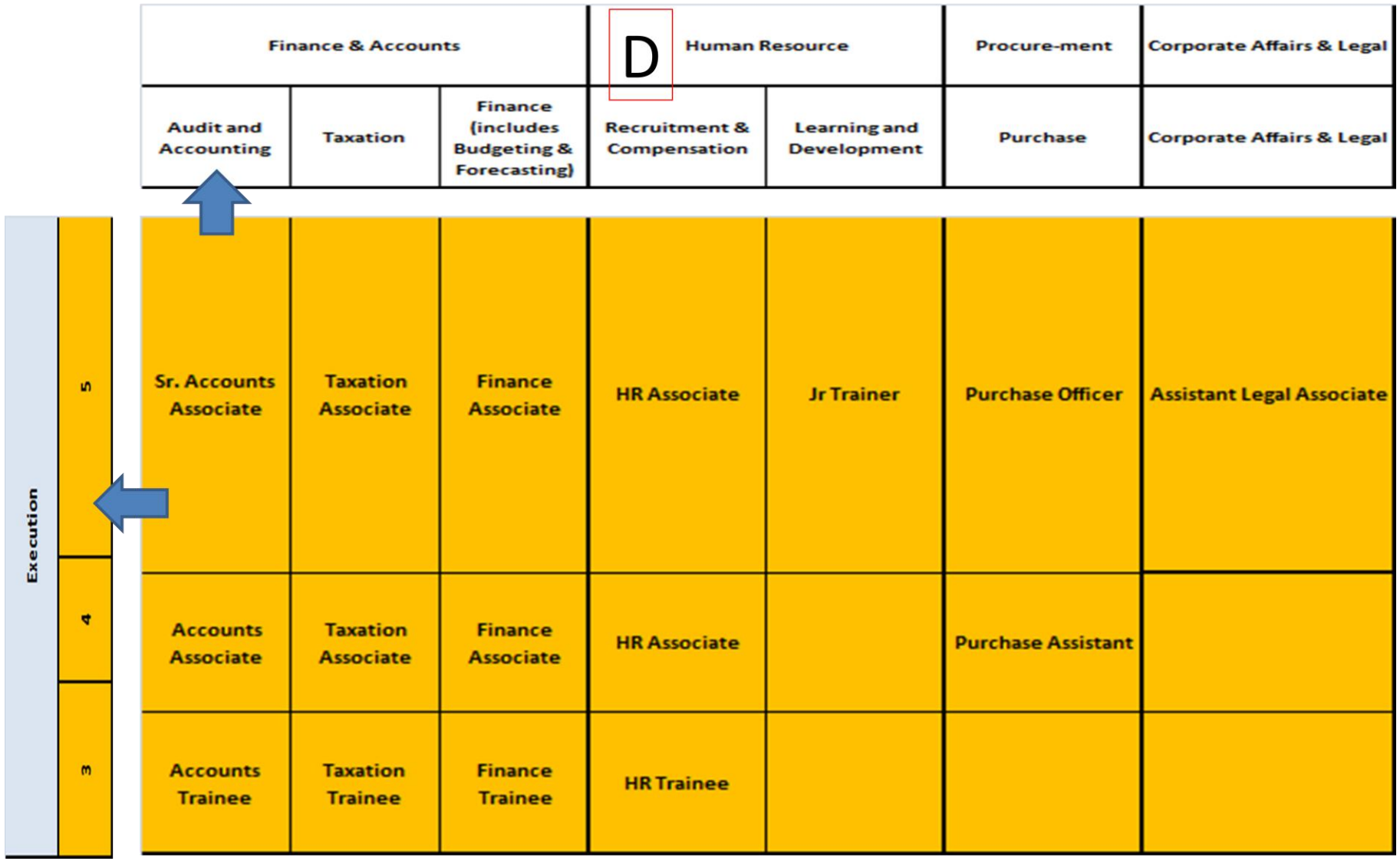
Legends: < 3% | < 5% | 15% | 25% | > 50%

Occupations	NSQF LEVEL	Sales & Marketing					Engineering, Installation, Commissioning, Operations & After Service				Finance & Accounts			Human Resource		Procurement	Corporate Affairs & Legal
Tracks		Channel Sales (B2C)	Institutional Sales (B2B)	Product Marketing/ Business Development	Pre-Sales/ Tendering / Technical support	Training	Product Engineering/ System Design	Product/ System I&C	Product/ System O&M	Product/ System R&M	Audit and Accounting	Taxation	Finance (includes Budgeting & Forecasting)	Recruitment & Compensation	Learning and Development	Purchase	Corporate Affairs & Legal
Management	8,9	Director/ President : Sales/ Marketing/ Business Development					Director/ President - Projects/ Engineering/ Contracts/ After Sales				Director/ President : Finance & Accounts			Director/ President : HR		Director/ President : HR	Director/ President : Corporate Affairs/ Legal
		VP/ GM: Sales		VP/ GM : Marketing			VP/ GM : Engineering/ System Design	VP/ GM : I&C	VP/ GM : O&M	VP/ GM : Product support / Repair	VP/ GM : Accounts	VP/ GM : Taxation	VP/ GM : Finance	VP/ GM : HR	VM/GM Training	VP/ GM : Purchase	VP/ GM : Corporate Affairs / Legal
	8	AVP/ AGM: Channel Sales	AVP/ AGM: Institutional Sales / Business Development	AVP/ AGM: Marketing/ Business Development		AVP/AGM - S&M Training	AVP/ AGM : Engineering/ System Design	AVP/ AGM : I&C	AVP/ AGM : O&M	AVP/ AGM : Support & Repair	AVP/ AGM : Accounts	AVP/ AGM : Taxation	AVP/ AGM : Finance	AVP/ AGM : HR	AVP/ AGM : Training	AVP/ AGM : Purchase	AVP/ AGM : Corporate Affairs / Legal
Middle Management	7	Sr. Manager: Channel Sales	Sr. Manager: Channel Sales	Sr. Manager : Marketing/ BD	Sr. Manager- Pre-Sales/ Tendering/ Technical Support rt	Sr. Manager - S&M Training	Sr. Manager - Engineering & System Design	Sr. Manager - I&C	Sr. Manager - O&M	Sr. Manager - Support & Repair	Sr. Manager - Accounts	Sr. Manager - Taxation	Sr. Manager - Finance	Sr. Manager - HR	Manager - Training	Sr. Manager - Purchase	Sr. Manager - Corporate Affairs / Legal
		Manager: Channel Sales	Manager: Channel Sales	Manager : Marketing/ BD	Manager- Pre-Sales/ Tendering/ Technical Support	Manager - S&M Training	Manager - Engineering/ & System Design	Manager - I&C	Manager - O&M	Manager Support & Repair	Manager - Accounts	Manager - Taxation	Manager - Finance	Manager - HR	Master Trainer	Manager - Purchase	Manager - Corporate Affairs / Legal
		Asstn. Manager: Channel Sales; Zonal Manager	Asstn. Manager: Channel Sales	Asttn. Manager : Marketing/ BD	Asst. Mgr: Pre-Sales/ Tendering/ Technical Support	Sr. S&M Trainer	Sr Engineer Systems/ Design/Hardware /Firmware/ Software/ Programming	Asttn. Manager I&C / Sr. Engineer I&C	Asttn. Manager O&M / Sr. Engineer-O&M	Asttn. Manager Support & Repair / Engineer Support & Repair	Manager - Accounts	Asttn. Manager Taxation	Asttn. Manager Finance	Asttn. Manager HR	Sr. Trainer	Asttn. Manager Purchase	Asttn. Manager Corporate Affairs / Legal
		Sr. Sales Engineer/ Territory Manager	Sr. Sales Engineer	Sr. Engineer: Marketing/ Sales	Sr. Engineer: Pre-Sales/ Tendering/ Technical Support	S&M Trainer					Asttn. Manager Accounts	Jr. Manager Taxation	Jr. Manager Finance	Jr. Manager HR		Jr. Manager Purchase	Senior Legal Associate
	6	Sales Executive / Engineer	Sales Executive / Engineer	Sales Executive / Engineer	Sales Executive / Engineer	S&M Trainer	Engineer Systems/ Design/Hardware /Firmware/ Software/ Programming	Sr Supervisor/ Engineer I&C	Sr Supervisor/ Engineer O&M	Sr Supervisor/ Engineer R&M	Jr. Manager Accounts	Sr. Taxation Associate	Sr. Finance Associate	Sr. HR Associate	Trainer	Sr. Purchase Officer	Legal Associate
Execution	5	Jr/Asstt/Trainee Engineer -Pre Sales	Jr/Asstt/Trainee Engineer -Pre Sales	Jr/Asstt/Trainee Engineer -Pre Sales	Jr/Asstt/Trainee Engineer / Specialist - Pre-Sales/ Tendering/ Tech Support	S&M Trainer	Jr /Asstt / Trainee Engineer System Design	Supervisor I&C	Supervisor O&M	Supervisor R&M	Sr. Accounts Associate	Taxation Associate	Finance Associate	HR Associate	Jr Trainer	Purchase Officer	Assistant Legal Associate
		Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive	S&M Trainer		Sr Technician I&C	Sr Technician O&M	Sr Technician R&M							Assistant Legal Associate
	4	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive			Technician I&C	Technician O&M	Technician R&M	Accounts Associate	Taxation Associate	Finance Associate	HR Associate		Purchase Assistant	
	3							Jr / Asstt Technician C&I	Jr / Asstt Technician O&M	Jr / Asstt Technician	Accounts Trainee	Taxation Trainee	Finance Trainee	HR Trainee			

Occupations	>>	Sales & Marketing					Engineering, Installation, Commissioning, Operations & After Service			
Tracks	NSQF LEVEL	Channel Sales (B2C)	Institutional Sales (B2B)	Product Marketing/ Business Development	Pre-Sales/ Tendering / Technical support	Training	Product Engineering/ System Design	Product/ System I&C	Product/ System O&M	Product/ System R&M
Management	8,9	Director/ President : Sales/ Marketing/ Business Development					Director/ President - Projects/ Engineering/ Contracts/ After Sales			
		VP/ GM: Sales		VP/ GM : Marketing			VP/ GM : Engineering/ System Design	VP/ GM : I&C	VP/ GM : O&M	VP/ GM : Product support / Repair
	8	AVP/ AGM: Channel Sales	AVP/ AGM: Institutional Sales / Business Development	AVP/ AGM: Marketing/ Business Development		AVP/AGM - S&M Training	AVP/ AGM : Engineering/ System Design	AVP/ AGM : I&C	AVP/ AGM : O&M	AVP/ AGM : Support & Repair
Middle Management	7	Sr. Manager: Channel Sales	Sr. Manager: Channel Sales	Sr. Manager : Marketing/ BD	Sr. Manager- Pre Sales/ Tendering/ Technical Support rt	Sr. Manager - S&M Training	Sr. Manager - Engineering & System Design	Sr. Manager - I&C	Sr. Manager - O&M	Sr. Manager - Support & Repair
		Manager: Channel Sales	Manager: Channel Sales	Manager : Marketing/ BD	Manager- Pre Sales/ Tendering/ Technical Support	Manager - S&M Training	Manager - Engineering/ & System Design	Manager - I&C	Manager - O&M	Manager Support & Repair
		Asstn. Manager: Channel Sales; Zonal Manager	Asstn. Manager: Channel Sales	Asttn. Manager : Marketing/ BD	Asst. Mgr: Pre Sales/ Tendering/ Technical Support	Sr. S&M Trainer	Sr Engineer Systems/ Design/Hardware /Firmware/ Software/ Programming	Asttn. Manager I&C / Sr. Engineer I&C	Asttn. Manager O&M / Sr. Engineer- O&M	Asttn. Manager Support & Repair / Engineer Support & Repair
		Sr. Sales Engineer/ Territory Manager	Sr. Sales Engineer	Sr. Engineer: Marketing/ Sales	Sr. Engineer: Pre Sales/ Tendering/ Technical Support					
	6	Sales Executive / Engineer	Sales Executive / Engineer	Sales Executive / Engineer	Sales Executive / Engineer	S&M Trainer	Engineer Systems/ Design/Hardware /Firmware/ Software/ Programming	Sr Supervisor/ Engineer I&C	Sr Supervisor/ Engineer O&M	Sr Supervisor/ Engineer R&M

Occupations	>>	Sales & Marketing					Engineering, Installation, Commissioning, Operations & After Service			
Tracks	NSQF LEVEL	Channel Sales (B2C)	Institutional Sales (B2B)	Product Marketing/ Business Development	Pre-Sales/ Tendering / Technical support	Training	Product Engineering/ System Design	Product/ System I&C	Product/ System O&M	Product/ System R&M
Execution	5	Jr/Asstt/Trainee Engineer -Pre Sales	Jr/Asstt/Trainee Engineer -Pre Sales	Jr/Asstt/Trainee Engineer -Pre Sales	Jr/Asstt/Trainee Engineer / Specialist - Pre-Sales/ Tendering/ Tech Support	Jr S&M Trainer	Jr /Asstt / Trainee Engineer System Design	Supervisor I&C	Supervisor O&M	Supervisor R&M
		Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive			Sr Technician I&C	Sr Technician O&M	Sr Technician R&M
	4	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive			Technician I&C	Technician O&M	Technician R&M
	3							Jr / Asstt Technician C&I	Jr / Asstt Technician O&M	Jr / Asstt Technician

Occupations >>		Finance & Accounts			Human Resource		Procure-ment	Corporate Affairs & Legal
Tracks	NSQF LEVEL	Audit and Accounting	Taxation	Finance (includes Budgeting & Forecasting)	Recruitment & Compensation	Learning and Development	Purchase	Corporate Affairs & Legal
Management	9	Director/ President : Finance & Accounts			Director/ President : HR		Director/ President : HR	Director/ President : Corporate Affairs/ Legal
	8, 9	VP/ GM : Accounts	VP/ GM : Taxation	VP/ GM : Finance	VP/ GM : HR	VM/GM Training	VP/ GM : Purchase	VP/ GM : Corporate Affairs / Legal
	8	AVP/ AGM : Accounts	AVP/ AGM : Taxation	AVP/ AGM : Finance	AVP/ AGM : HR	AVP/ AGM : Training	AVP/ AGM : Purchase	AVP/ AGM : Corporate Affairs / Legal
Middle Management	7	Sr. Manager - Accounts	Sr. Manager - Taxation	Sr. Manager - Finance	Sr. Manager - HR	Manager - Training	Sr. Manager - Purchase	Sr. Manager - Corporate Affairs / Legal
		Manager - Accounts	Manager - Taxation	Manager - Finance	Manager - HR	Master Trainer	Manager - Purchase	Manager - Corporate Affairs / Legal
		Manager - Accounts	Asttn. Manager Taxation	Asttn. Manager Finance	Asttn. Manager HR	Sr. Trainer	Asttn. Manager Purchase	Asttn. Manager Corporate Affairs / Legal
		Asttn. Manager Accounts	Jr. Manager Taxation	Jr. Manager Finance	Jr. Manager HR		Jr. Manager Purchase	Senior Legal Associate
	6	Jr. Manager Accounts	Sr. Taxation Associate	Sr. Finance Associate	Sr. HR Associate	Trainer	Sr. Purchase Officer	Legal Associate


Finance & Accounts
D
Human Resource
Procure-ment
Corporate Affairs & Legal
Audit and Accounting
Taxation
Finance (includes Budgeting & Forecasting)
Recruitment & Compensation
Learning and Development
Purchase
Corporate Affairs & Legal
Execution
5
4
3
Sr. Accounts Associate
Taxation Associate
Finance Associate
HR Associate
Jr Trainer
Purchase Officer
Assistant Legal Associate
Accounts Associate
Taxation Associate
Finance Associate
HR Associate
Purchase Assistant
Accounts Trainee
Taxation Trainee
Finance Trainee
HR Trainee

BACK

13. Job Roles in I&A Sub-sectors for SIs

Major Roles Related to System Integrators/ Service Provider / Contractor in the I&A segment

Listed below are roles which comprise key skills related to System Integrators/ Service Provider / Contractors in the instrumentation and automation segment. Other roles relating to higher management and supporting functions such as finance, administration, purchase, HR and corporate affairs are not included - although these are identified in the OM. The job role identification is based on industry interaction, feedback and data received from various emails, visits and questionnaires.

Job Roles in general have Junior, Assistant, Senior classifications which convey their depth of knowledge and skills in the occupation. These have not been expanded in the following list, in the interest of clarity.

QPs have been defined for the highlighted Job Roles and presented in this QRC.

Statistics : 127

A&T	16
D&D	3
Cal	12
I&C	52
O&M	14
R&M	19
Sup	6
S&M	8
Pur	6

Sl.	Job Role	Segment	Occupation	NSQF Level	Entry Level (Y/N)
1	Asstt Engineer - Repair	I&A	Repair	5	N
2	Asstt Manager - Product Support / Repair	I&A	Repair	5	N
3	Automation Assembly & Test Supervisor	Automation	A&T	5	N
4	Automation Programmer (PLC/HMI/Drive)	Automation	I&C	4	Y
5	Automation Quality Assurance Supervisor	Automation	A&T	5	N
6	**Automation Solution Engineer**	Automation	**I&C, A&T, D&D**	**5**	Y
7	Automation Technician - Installation & Commissioning (PLC/HMI/Drive)	Automation	I&C	4	Y
8	Automation Technician - Repair & Maintenence (PLC/HMI/Drive)	Automation	R&M	4	Y

9	Automation Troubleshooter (PLC/HMI/Drive)	Automation	I&C	5	N
10	**Building Automation Engineer**	Automation	**I&C, A&T, D&D**	**5**	**Y**
11	Calibration Supervisor	I&A	Calibration	5	Y
12	Calibration Technician (Control Valves)	I&A	Calibration	4	Y
13	Calibration Technician (Dimensions)	I&A	Calibration	4	Y
14	Calibration Technician (Electrical parameters)	I&A	Calibration	4	Y
15	Calibration Technician (Electro-technical instruments)	I&A	Calibration	4	Y
16	Calibration Technician (Mechanical Instruments)	I&A	Calibration	4	Y
17	Calibration Technician (Multi Skill)	I&A	Calibration	4	Y
18	**Calibration Technician (Thermal Instruments)**	I&A	**Calibration**	**4**	Y
19	Calibration Technicians (Analyser systems)	I&A	Calibration	4	Y
20	Calibration Technicians (Flow Parameters)	I&A	Calibration	4	Y
21	Calibration Technicians (Gas Sensors/Chemical Sensors)	I&A	Calibration	4	Y
22	Calibration Technicians (Pressure/Level/Flow)	I&A	Calibration	4	Y
23	CCTV Equipment Repair Technician	Automation	R&M	4	Y
24	CCTV Installation & Commissioning Supervisor	Automation	I&C	5	N
25	CCTV Installation & Commissioning Technician	Automation	I&C	4	Y
26	Customer Support Assistant	I&A	Tech Sup	4	Y
27	Customer Support Engineer	I&A	Tech Sup	5	Y
28	Customer Support Specialist/Executive	I&A	Tech Sup	5	N
29	DCS Operator	Automation	O&M	4	N
30	Diesel Generator Installation Technician	Automation	I&C	4	Y
31	Diesel Generator Repair and Maintenance Technician	Automation	I&C	4	N
32	**Embedded Instrumentation Engineer**	I&A	**R&M, D&D, A&T**	**5**	**Y**
33	Engineer - Product Support / Repair	I&A	Repair	6	N
34	Engineer / Specialist - Pre-Sales/ Tendering/ Technical Support	I&A	S&M	7	N
35	Escalator Technician - Installation	Automation	I&C	4	Y
36	Escalator Technician - Repair and Maintenance	Automation	R&M	4	N
37	HMI Repair Technician	Automation	R&M	4	N
38	Installation & Commissioning Technician (Automated Lighting control)	Automation	I&C	4	Y
39	Installation & Commissioning Engineer	I&A	I&C	5	Y
40	Installation & Commissioning Supervisor	I&A	I&C	5	N

41	Installation & Commissioning Technician (Analyser systems)	I&A	I&C	5	N
42	Installation & Commissioning Technician (Hazardous Environment/Intrinsic Safety)	I&A	I&C	4	Y
43	Installation & Commissioning Technician (Hydraulic)	I&A	I&C	4	Y
44	Installation & Commissioning Technician (Multi skill - specify)	I&A	I&C	5	N
45	Installation & Commissioning Technician (NC Machines)	I&A	I&C	4	Y
46	Installation & Commissioning Technician (Pneumatic)	I&A	I&C	4	Y
47	Installation & Commissioning Technician (Pressure Level/Flow)	I&A	I&C	4	Y
48	Installation & Commissioning Technician (Process Control)	I&A	I&C	5	N
49	Installation & Commissioning Technician (Robotic)	I&A	I&C	4	Y
50	Installation & Commissioning Technician (Thermal)	I&A	I&C	4	Y
51	Installation & Commissioning Technician (Vacuum)	I&A	I&C	4	Y
52	Installation & Commissioning Technician-Advanced Surveillance Equipment	Automation	I&C	4	Y
53	Installation & Commissioning Supervisor - Automated Solar Water Pumping	Automation	I&C	4	Y
54	Installation & Commissioning Technician - Automated Solar Water Pumping	Automation	I&C	4	Y
55	Installation & Commissioning Technician (Automated Access & Attendance Systems)	Automation	I&C	4	Y
56	Installation & Commissioning Technician (Automated Climate control)	Automation	I&C	4	Y
57	Installation & Commissioning Technician (Automated Fire detection & control systems)	Automation	I&C	4	Y
58	Instrument / Control Panel Assembly & Test Supervisor	I&A	A&T	5	N
59	Instrument / Control Panel Assembly Junior Technician, / Helper	I&A	A&T	3	Y
60	Instrument / Control Panel Assembly Technician	I&A	A&T	4	Y
61	Instrument / Control Panel Quality Assurance Supervisor	I&A	A&T	5	N
62	Instrument / Control Panel Test Technician	I&A	A&T	4	Y
63	Instrument Impulse Line Fabricator & Installer	I&A	I&C	4	Y

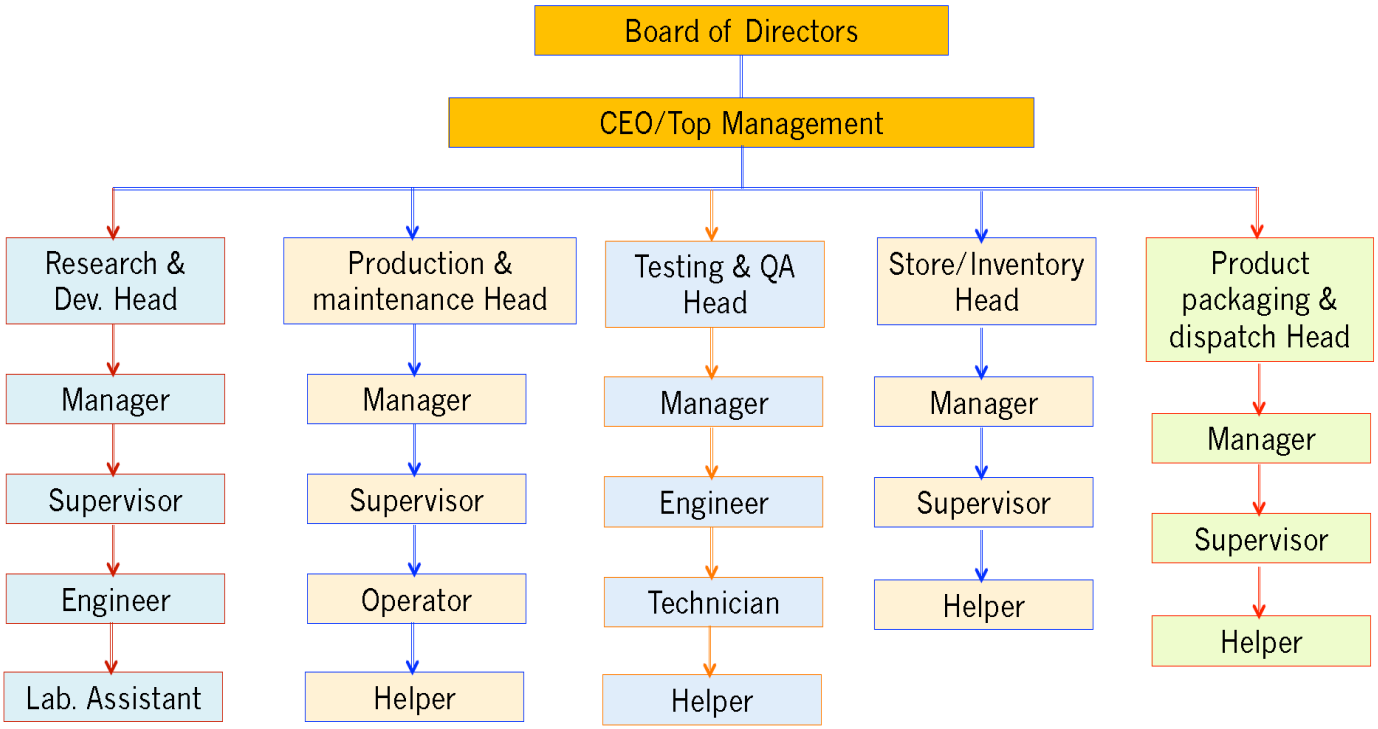
64	Instrumentation Engineer	I&A	O&M	7	N
65	Instrumentation Foreman / Supervisor	I&A	O&M	5	N
66	Instrumentation Technician (One or more skills: Thermal, Electro-Technical, Mechanical, Pressure/Level/Flow)	I&A	O&M	4	N
67	Instrumentation Technician (Analyser systems)	I&A	O&M	4	N
68	**Instrumentation Technician (Control Valves)**	I&A	**O&M**	**4**	**N**
69	Instrumentation Technician (Hazardous Environment/ Intrinsic Safety)	I&A	O&M	4	N
70	Instrumentation Technician (Mechatronic/ Robotic)	I&A	O&M	4	N
71	Instrumentation Technician (One or more skills: Pneumatic/ Hydraulic/ Vacuum)	I&A	O&M	4	N
72	**Jr Instrumentation Technician (Process Control)**	I&A	**O&M**	**3**	Y
73	Jr Technician - Repair	I&A	Repair	3	Y
74	Lift Technician - Installation	Automation	I&C	4	Y
75	Lift Technician - Repair and Maintenance	Automation	R&M	4	N
76	Manager - Product Support / Repair	I&A	Repair	6	N
77	Marketing Manager	I&A	S&M	6	N
78	Mechatronics Engineer	I&A	A&T	7	N
79	Mechatronics Supervisor	I&A	A&T	5	N
80	Mechatronics Technician	I&A	A&T	4	N
81	Operator (Building Automation Control Panel)	Automation	O&M	4	Y
82	PLC Repair Technician	Automation	R&M	4	N
83	Pre-Sales Assistant / Jr Pre-Sales Executive	I&A	S&M	4	Y
84	Procurement Engineer (Technical)	I&A	Purchase	7	N
85	Procurement Officer (Technical)	I&A	Purchase	6	N
86	Purchase Manager	I&A	Purchase	7	N
87	Repair & Maintenence Technician - Automated Solar Water Pumping	Automation	I&C	4	N
88	Repair Technician (Automated Access & attendance Systems)	Automation	I&C	4	N
89	Repair Technician (Automated Climate control)	Automation	I&C	4	N
90	Repair Technician (Automated Fire detection & control systems)	Automation	I&C	4	N
91	Repair Technician (Automated Lighting control)	Automation	R&M	4	N
92	Repair Technician-Advanced Surveillance Equipment	Automation	R&M	4	N
93	Robotics Engineer	I&A	A&T	7	N
94	Robotics Supervisor	I&A	A&T	5	N
95	Robotics Technician	I&A	A&T	4	N
96	SCADA Operator	Automation	I&C	4	Y

97	SCADA Programmer	Automation	I&C	4	Y
98	SCADA Supervisor	Automation	I&C	5	N
99	SCADA Technician - Installation & Commissioning	Automation	I&C	4	Y
100	SCADA Trouble Shooter	Automation	I&C	4	N
101	Sr Pre-Sales Assistant	I&A	S&M	4	Y
102	Sr Technician - Repair	I&A	Repair	5	N
103	Sr. Engineer Pre-Sales/ Tendering/ Technical Support	I&A	S&M	7	N
104	Supervisor - Automated Solar Water Pumping	Automation	I&C	5	N
105	Supervisor - Repair	I&A	Repair	5	N
106	Supervisor (Automated Lighting control)	Automation	I&C,O&M	5	N
107	Supervisor (Building automation)	Automation	I&C,O&M	5	N
108	Technical Sales Assistant	I&A	S&M	4	Y
109	Technical Sales Asstt. Manager	I&A	S&M	6	Y
110	Technical Sales Manager	I&A	S&M	7	N
111	Technical Support Assistant	I&A	Tech Sup	4	Y
112	Technical Support Manager	I&A	Tech Sup	7	N
113	Technical Support Specialist/Executive/ Asstt Engineer	I&A	Tech Sup	5	N
114	Technician / Junior Technician- Data Cabling	Automation	I&C	3	Y
115	Technician / Junior Technician- Fire Alarm Cabling	Automation	I&C	3	Y
116	Technician / Junior Technician- Intercom Cabling	Automation	I&C	3	Y
117	Technician / Junior Technician- Structured Cabling	Automation	I&C	3	Y
118	Technician / Junior Technician- Video/CCTV Cabling	Automation	I&C	3	Y
119	Technician - Cabling (multi skill)	Automation	I&C	4	Y
120	Technician - Repair	I&A	Repair	4	N
121	Technician (Building automation - multi skill)	Automation	I&C,O&M	4	Y
122	Technician / Junior Technician - Power Cabling	Automation	I&C	3	Y
123	Technician Helper - Repair	I&A	Repair	3	Y
124	Vendor Development Engineer (Technical)	I&A	Purchase	6	N
125	Vendor Development Manager	I&A	Purchase	7	N
126	Vendor Development Officer (Technical)	I&A	Purchase	5	Y
127	VFD Repair Technician	Automation	R&M	4	N

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14. Occupational Map - Instrumentation & Automation Sub-sectors for End User Industry

Model Organizational structure (for large companies)



TECHNOLOGIES:
PLC, SCADA, VFD, RTU, DCS, Relays, Switches, Networking, Pneumatics, Hydraulics, Vacuum Robotics, Embedded systems, Sensors, Valves, controllers, Gauges, Piping, looping, networking, Testing & Measurement, Calibration etc.

BACK

Occupations >>	NSQF LEVEL	R&D	Production & Maintenance			Testing & Quality Assurance		Stores/ Material Management/ Inventory Control	Product Packaging & Dispatches	Corporate Affairs & Legal
Management	8,9	Chief Executive Officer / Managing Director/ President								
	8	Director/VP/GM/ Chief Scientist / Chief Engineer Products & Process R&D	Director/VP/ GM- Production/ Process/ Line	Director/VP/ GM- Maintenance		Director/VP/ GM Testing & quality Assurance		Director/VP/ GM: MM/ Stores		Director/ President : Corporate Affairs/ Legal
		Product Managers / Distinguished Engineer, Principal Engineer, Process & Technology Expert/ Principal Scientist	AGM Production/ Process/ Line	AVP/ AGM - Automation	AVP/AGM - Instrumnetation	AVP/AGM - Testing & Calibration	AVP/AGM - Quality Assurance	AVP/ AGM Material Management/ Stores	AVP/AGM Packaging / Dispatches	VP/ GM : Corporate Affairs / Legal
Middle Level	7	Team Leader/ Senior Engineer/ Sr Process Specialist/ Senior Scientist / Sr Product Designer /	Sr. Manager Production/ Process/ Line	Sr. Manager - Automation	Sr. Manager - Instrumentation	Manager: Testing & Calibration	Sr Manager: Quality/ Process Assurance	Sr. Manager: MM/ Stores	Sr Manager Packaging/ Dispatches	AVP/ AGM : Corporate Affairs / Legal
		Supervisor/ Senior Engineer/ Process Specialist/ Prodct Specialist/ Product Designer/ Scientist/ Product	Production/ Line/ Process Incharge	Manager - Automation	Manager - Instrumentation	Manager: Testing & Calibration	Manager: Quality/ Process Assurance	Manager: MM/ Stores	Manager Packaging/ Dispatches	Sr. Manager - Corporate Affairs / Legal
		Scientist / Process Engineer / Asst. Product Designer/ Lab Incharge	Shift Incharge	Sr Engineer - Automation / Asstt Manager - Automation	Sr Engineer- Instrumentation / Asstt Manager - Instrumentation	Sr Engineer Testing / Calibration/ Asstt. Manager - Testing & Calibration	Sr. Engineer Quality/ Process Assurance/ Asstt Manager - Quality/ Process Assurance	Asstt Manager- MM/ Stores	Asstt Manager Packaging/ Dispatches	Manager - Corporate Affairs / Legal
	6	Scientist/ Engineer/ Sr Lab Assistant	Shift Supervisor	Engineer - Automation	Engineer - Instrumentation	Engineer - Testing / Calibration	Engineer quality/ Process Assurance	Supervisor: MM/ Stores	Packaging Supervisor	Asttn. Manager Corporate Affairs / Legal
Entry Level	5	Junior Scientist/ Trainee Engineer/ Lab Assistant	Sr. Operator Production/ Line/ Process	Jr / Asstt/ Trainee Engineer - Automation	Jr / Asstt/ Trainee Engineer - Instrumentation	Jr / Asstt/ Trainee Engineer - Calibration	Jr / Asstt/ Trainee Engineer - Quality/ Process Assurance	SrStores Assistant	Sr Packaging Assistant	Senior Legal Associate
			Operator Production/ Line/ Process	Sr Technician - Automation	Sr Technician - Instrumentation	Sr Technician - Testing / Calibration	Sr Technician - Quality/ Process Assurance			
	4		Jr. Operator Production/ Line/ Process	Technician - Automation	Technician - Instrumentation	Technician - Testing / Calibration	Technician - Quality/ Process Assurance	Stores Assistant	Packaging Assistant	Legal Associate
	3		Operator Helper	Technician, Assistant - Automation	Technician, Assistant - Instrumentation	Technician, Assistant - Testing / Calibration	QA Helper	Stores Helper	Jr Packaging Assistant	Assistant Legal Associate

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B

H e a t M a p (OM - Instrumentation & Automation for EU)

Legends:	< 3%	< 5%	15%	25%	> 50%

Occupa-tions >>	NSQF LEVEL	R&D	Production & Maintenance		Testing & Quality Assurance		Stores/ Material Management/ Inventory Control	Product Packaging & Dispatches	Corporate Affairs & Legal
Management	8,9	Chief Executive Officer / Managing Director/ President							
	8	Director/VP/GM/ Chief Scientist / Chief Engineer Products & Process R&D	Director/VP/ GM- Production/ Process/ Line	Director/VP/ GM- Maintenance	Director/VP/ GM Testing & quality Assurance		Director/VP/ GM: MM/ Stores		Director/ President : Corporate Affairs/ Legal
		Product Managers / Distinguished Engineer, Principal Engineer, Process & Technology Expert/ Principal Scientist	AGM Production/ Process/ Line	AVP/ AGM - Automation	AVP/AGM - Instrumnetation	AVP/AGM - Testing & Calibration	AVP/AGM - Quality Assurance	AVP/ AGM Material Management/ Stores	AVP/AGM Packaging / Dispatches	VP/ GM : Corporate Affairs / Legal
Middle Level	7	Team Leader/ Senior Engineer/ Sr Process Specialist/ Senior Scientist / Sr Product Designer /	Sr. Manager Production/ Process/ Line	Sr. Manager - Automation	Sr. Manager - Instrumentation	Sr Manager: Testing & Calibration	Sr Manager: Quality/ Process Assurance	Sr. Manager: MM/ Stores	Sr Manager Packaging/ Dispatches	AVP/ AGM : Corporate Affairs / Legal
		Supervisor/ Senior Engineer/ Process Specialist/ Prodct Specialist/ Product Designer/ Scientist/ Product	Production/ Line/ Process Incharge	Manager - Automation	Manager - Instrumentation	Manager: Testing & Calibration	Manager: Quality/ Process Assurance	Manager: MM/ Stores	Manager Packaging/ Dispatches	Sr. Manager - Corporate Affairs / Legal
		Scientist / Process Engineer / Asst. Product Designer/ Lab Incharge	Shift Incharge	Sr Engineer - Automation / Asstt Manager - Automation	Sr Engineer- Instrumentation / Asstt Manager - Instrumentation	Sr Engineer Testing / Calibration/ Asstt. Manager - Testing & Calibration	Sr. Engineer Quality/ Process Assurance/ Asstt Manager - Quality/ Process Assurance	Asstt Manager- MM/ Stores	Asstt Manager Packaging/ Dispatches	Manager - Corporate Affairs / Legal
	6	Scientist/ Engineer/ Sr Lab Assistant	Shift Supervisor	Engineer - Automation	Engineer - Instrumentation	Engineer - Testing / Calibration	Engineer quality/ Process Assurance	Supervisor: MM/ Stores	Packaging Supervisor	Asttn. Manager Corporate Affairs / Legal
Entry Level	5	Junior Scientist/ Trainee Engineer/ Lab Assistant	Sr. Operator Production/ Line/ Process	Jr / Asstt/ Trainee Engineer - Automation	Jr / Asstt/ Trainee Engineer - Instrumentation	Jr / Asstt/ Trainee Engineer - Calibration	Jr / Asstt/ Trainee Engineer - Quality/ Process Assurance	SrStores Assistant	Sr Packaging Assistant	Senior Legal Associate
			Sr. Operator Production/ Line/ Process	Sr Technician - Automation	Sr Technician - Instrumentation	Sr Technician - Testing / Calibration	Sr Technician - Quality/ Process Assurance	SrStores Assistant	Sr Packaging Assistant	Senior Legal Associate
	4		Jr. Operator Production/ Line/ Process	Technician - Automation	Technician - Instrumentation	Technician - Testing / Calibration	Technician - Quality/ Process Assurance	Stores Assistant	Packaging Assistant	Legal Associate
	3		Operator Helper	Technician, Assistant - Automation	Technician, Assistant - Instrumentation	Technician, Assistant - Testing / Calibration	QA Helper	Stores Helper	Jr Packaging Assistant	Assistant Legal Associate

Occupations >>	NSQF LEVEL	R&D	Production & Maintenance			Testing & Quality Assurance		Stores/ Material Management/ Inventory Control	Product Packaging & Dispatches	Corporate Affairs & Legal
Management	8,9	Chief Executive Officer / Managing Director/ President								
	8	Director/VP/GM/ Chief Scientist / Chief Engineer Products & Process R&D	Director/VP/ GM- Production/ Process/ Line	Director/VP/ GM- Maintenance		Director/VP/ GM Testing & quality Assurance		Director/VP/ GM: MM/ Stores		Director/ President : Corporate Affairs/ Legal
		Product Managers / Distinguished Engineer, Principal Engineer, Process & Technology Expert/ Principal Scientist	AGM Production/ Process/ Line	AVP/ AGM - Automation	AVP/AGM - Instrumnetation	AVP/AGM - Testing & Calibration	AVP/AGM - Quality Assurance	AVP/ AGM Material Management/ Stores	AVP/AGM Packaging / Dispatches	VP/ GM : Corporate Affairs / Legal
Middle Level	7	Team Leader/ Senior Engineer/ Sr Process Specialist/ Senior Scientist / Sr Product Designer /	Sr. Manager Production/ Process/ Line	Sr. Manager - Automation	Sr. Manager - Instrumentation	Sr Manager: Testing & Calibration	Sr Manager: Quality/ Process Assurance	Sr. Manager: MM/ Stores	Sr Manager Packaging/ Dispatches	AVP/ AGM : Corporate Affairs / Legal
		Supervisor/ Senior Engineer/ Process Specialist/ Prodct Specialist/ Product Designer/ Scientist/	Production/ Line/ Process Incharge	Manager - Automation	Manager - Instrumentation	Manager: Testing & Calibration	Manager: Quality/ Process Assurance	Manager: MM/ Stores	Manager Packaging/ Dispatches	Sr. Manager - Corporate Affairs / Legal
		Scientist / Process Engineer / Asst. Product Designer/ Lab Incharge	Shift Incharge	Sr Engineer - Automation / Asstt Manager - Automation	Sr Engineer- Instrumentation / Asstt Manager - Instrumentation	Sr Engineer Testing / Calibration/ Asstt. Manager - Testing & Calibration	Sr. Engineer Quality/ Process Assurance/ Asstt Manager - Quality/ Process Assurance	Asstt Manager- MM/ Stores	Asstt Manager Packaging/ Dispatches	Manager - Corporate Affairs / Legal
	6	Scientist/ Engineer/ Sr Lab Assistant	Shift Supervisor	Engineer - Automation	Engineer - Instrumentation	Engineer - Testing / Calibration	Engineer quality/ Process Assurance	Supervisor: MM/ Stores	Packaging Supervisor	Asttn. Manager Corporate Affairs / Legal

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Occupations >>	NSQF LEVEL	R&D	Production & Maintenance	B	Testing & Quality Assurance	Stores/ Material Management/ Inventory Control	Product Packaging & Dispatches	Corporate Affairs & Legal



Entry Level	5	Junior Scientist/ Trainee Engineer/ Lab Assistant	Sr. Operator Production/ Line/ Process	Jr / Asstt/ Trainee Engineer - Automation	Jr / Asstt/ Trainee Engineer - Instrumentation	Jr / Asstt/ Trainee Engineer - Calibration	Jr / Asstt/ Trainee Engineer - Quality/ Process Assurance	SrStores Assistant	Sr Packaging Assistant	Senior Legal Associate
			Operator Production/ Line/ Process	Sr Technician - Automation	Sr Technician - Instrumentation	Sr Technician - Testing / Calibration	Sr Technician - Quality/ Process Assurance			
	4		Jr. Operator Production/ Line/ Process	Technician - Automation	Technician - Instrumentation	Technician - Testing / Calibration	Technician - Quality/ Process Assurance	Stores Assistant	Packaging Assistant	Legal Associate
	3		Operator Helper	Technician, Assistant - Automation	Technician, Assistant - Instrumentation	Technician, Assistant - Testing / Calibration	QA Helper	Stores Helper	Jr Packaging Assistant	Assistant Legal Associate

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15. Job Roles in I&A Sub-sector for End User Industry

Major Roles Related to End User industry in the I&A segment

Listed below are roles which comprise key skills related to end user industry in the instrumentation and automation segment. Other roles relating to higher management and supporting functions such as finance, administration, purchase, HR and corporate affairs are not included - although these are identified in the OM. The job role identification is based on industry interaction, feedback and data received from various emails, visits and questionnaires.

Job Roles in general have Junior, Assistant, Senior classifications which convey their depth of knowledge and skills in the occupation. These have not been expanded in the following list, in the interest of clarity.

QPs have been defined for the highlighted Job Roles and presented in this QRC.

Statistics : 34

Cal	13
O&M	17
Pur	7

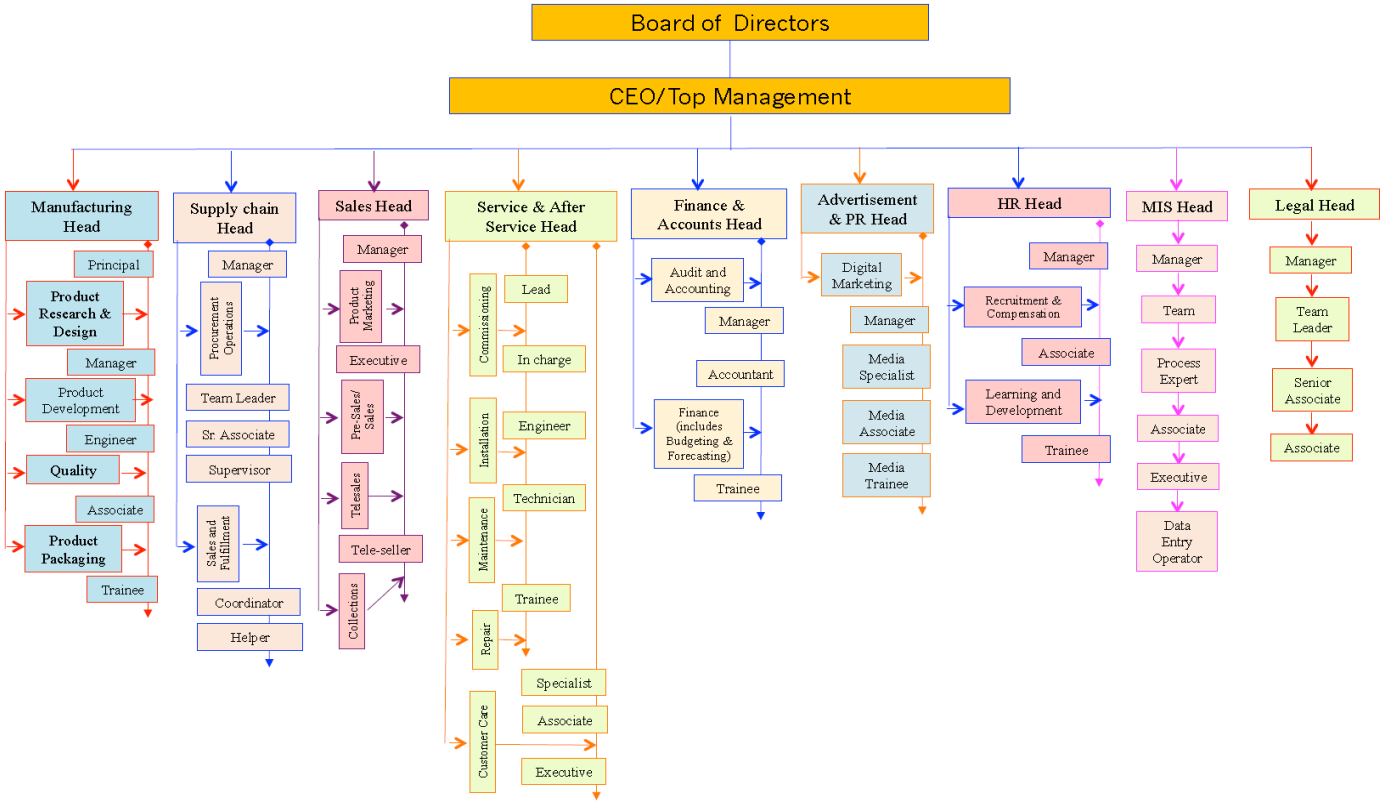
Sl.	Job Role	In sub sector	Occupation	NSQF Level	Entry Level (Y/N)
1	Air Handling Unit (AHU) Operator	Automation	O&M	4	Y
2	Air Handling Unit (AHU) Supervisor	Automation	O&M	5	N
3	Calibration Supervisor	I&A	Calibration	5	Y
4	Calibration Technician (Control Valves)	I&A	Calibration	4	Y
5	Calibration Technician (Dimensions)	I&A	Calibration	4	Y
6	Calibration Technician (Electrical parameters)	I&A	Calibration	4	Y
7	Calibration Technician (Electro-technical instruments)	I&A	Calibration	4	Y
8	Calibration Technician (Mechanical Instruments)	I&A	Calibration	4	Y
9	Calibration Technician (Multi Skill)	I&A	Calibration	4	Y
10	**Calibration Technician (Thermal Instruments)**	**I&A**	**Calibration**	**4**	Y
11	Calibration Technicians (Analyser systems)	I&A	Calibration	4	Y
12	Calibration Technicians (Flow Parameters)	I&A	Calibration	4	Y
13	Calibration Technicians (Gas Sensors/Chemical Sensors)	I&A	Calibration	4	Y
14	Calibration Technicians (Pressure/Level/Flow)	I&A	Calibration	4	Y

15	CCTV Operator	Automation	O&M	4	Y
16	Diesel Generator operator	Automation	O&M	3	Y
17	Escalator Operator	Automation	O&M	4	Y
18	Instrumentation Technician (One or more skills: Thermal, Electro-Technical, Mechanical, Pressure/Level/Flow)	I&A	O&M	4	N
19	**Instrumentation Technician (Control Valves)**	**I&A**	**O&M**	**4**	**N**
20	Instrumentation Technician (Hazardous Environment/ Intrinsic Safety)	I&A	O&M	4	N
21	Instrumentation Technician (Mechatronic/ Robotic)	I&A	O&M	4	N
22	Instrumentation Technician (One or more skills: Pneumatic/ Hydraulic/ Vacuum)	I&A	O&M	4	N
23	**Jr Instrumentation Technician (Process Control)**	**I&A**	**O&M**	**3**	Y
24	Operator (Building Automation Control Panel)	Automation	O&M	4	Y
25	Operator-Advanced Surveillance Equipment	Automation	O&M	4	Y
26	Procurement Engineer (Technical)	I&A	Purchase	7	N
27	Procurement Officer (Technical)	I&A	Purchase	6	N
28	Purchase Manager	I&A	Purchase	7	N
29	Supervisor (Automated Lighting control)	Automation	I&C,O&M	5	N
30	Supervisor (Building automation)	Automation	I&C,O&M	5	N
31	Technician (Building automation - multi skill)	Automation	I&C,O&M	4	Y
32	Vendor Development Engineer (Technical)	I&A	Purchase	6	N
33	Vendor Development Manager	I&A	Purchase	7	N
34	Vendor Development Officer (Technical)	I&A	Purchase	5	Y

BACK

16. Occupational Map - Surveillance Sub-sector (OEM)

Model Organizational structure (for large companies)



Industry verticals:

- Video surveillance
- Digital surveillance
- Access control system
- RFID
- IP surveillance
- Traffic surveillance

BACK

IASC SECTOR SKILL COUNCIL

N·S·D·C National Skill Development Corporation

Occupations >>		Research & Development		Manufacturing					Sales & Marketing					Engineering, Installation, Commissioning & After Service				Finance & Accounts			Human Resource		Procure-ment	Corporate Affairs & Legal
Tracks	NSQF LEVEL	Product Research & Design	Product Development	Production & Maintenance		Testing & Quality Assurance		Stores/ Material Management/ Inventory Control	Product Packaging & Dispatches	Channel Sales (B2C)	Institutional Sales (B2B)	Product Marketing/ Business Development	Pre-Sales/ Tendering / Technical support	Training	Product Engineering/ Integration/ System Design	Product/ System I&C	Product/ System Installation	Product/ System R&M	Audit and Accounting	Taxation	Finance (includes Budgeting & Forecasting)	Recruitment & Compensation	Learning and Development	Purcase	Corporate Affairs & Legal
Management	9	Managing Director/ Chief Executive Officer/								Chief Operating Officer/ Chairman					& Managining Director /			Proprioter/ Partner						
	8, 9	VP/GM/Director /Head /Chief Engineer/ Chief Technology Officer Research & Product Development		Director/ President - Plant/ Operations & Maintenance						Director/ President : Sales/ Marketing/ Business Development					Director/ President - Projects/ Engineering/ Contracts/ after sales				Director/ President : Finance & Accounts			Director/ President : HR		Director/ President : HR	Director/ President : Corporate Affairs/ Legal
				VP/ GM- Production	VP/ GM- Maintenance		VP/ GM Testing & quality Assurance		VP/ GM - MM/ Stores	VP/ GM - Sales		VP/ GM - Marketing			VP/ GM - Engineering/ System design	VP/ GM - I&C	VP/ GM - O&M	VP/ GM : Product support / Repair	VP/ GM : Accounts	VP/ GM : Taxation	VP/ GM : Finance	VP/ GM : HR		VP/ GM : Purchase	VP/ GM : Corporate Affairs / Legal
	8	Principal Engineer / Chief Architect / Research Manager	Principal Engineer / Chief Architect - Development Manager	AGM Production/ Process/ Line	AVP/ AGM - Automation	AVP/AGM - Instrumnetation	AVP/AGM - Testing & Calibration	AVP/AGM - Quality Assurance	AVP/ AGM Material Management/ Stores	AVP/AGM Packaging / Dispatches	AVP/ AGM: Channel Sales	AVP/ AGM: Institutional Sales / business development	AVP/ AGM: Marketing/ Business Development	AVP/AGM - Training	AVP/ AGM : engineering/ system design	AVP/ AGM : I&C	AVP/ AGM : O&M	AVP/ AGM : Product Support / Repair	AVP/ AGM : Accounts	AVP/ AGM : Taxation	AVP/ AGM : Finance	AVP/ AGM : HR	AVP/ AGM : Training	AVP/ AGM : Purchase	AVP/ AGM : Corporate Affairs / Legal
Middle Management	7	Sr Architect - Product Design	Program Manager - Product Development	Sr. Manager Production/ Process/ Line	Sr. Manager - Automation	Sr. Manager - Instrumentation	Sr Manager: Testing & Calibration	Manager: Quality/ Process Assurance	Sr. Manager: MM/ Stores	Sr Manager Packaging/ Dispatches	Sr Manager - Channel Sales	Sr Manager - Channel Sales	Sr Manager : Marketing/ BD	Sr Manager- Pre-Sales/tendering/ technical support	Sr Manager - Engineering/ system design	Sr Manager - I&C	Sr Manager - O&M	Sr Manager - Product Support / Repair	Sr. Manager - Accounts	Sr. Manager - Taxation	Sr. Manager - Finance	Sr. Manager - HR	Manager - Training	Sr. Manager - Purchase	Sr. Manager - Corporate Affairs / Legal
		Architect -Product Design	Manager- Product Development	Production/ Line/ Process Incharge	Manager - Automation	Manager - Instrumentation	Manager: Testing & Calibration	Manager: Quality/ Process Assurance	Manager: MM/ Stores	Manager Packaging/ Dispatches	Manager - Channel Sales	Manager - Channel Sales	Manager : Marketing/ BD	Manager- Pre-Sales/ Tendering/ Technical support	Manager - Engineering/ system design	Manager - I&C	Manager - O&M	Manager - Product Support / Repair	Manager - Accounts	Manager - Taxation	Manager - Finance	Manager - HR	Master Trainer	Manager - Purchase	Manager - Corporate Affairs / Legal
	7	Sr Engineer - Design , Prototyping,Testing, Product Qualification	Asstt Product Manager, Team lead, Development Incharge	Shift Incharge	Assitant Manager - Automation	Assitant Manager - Instrumentation	Asstn. Manager: Testing & Calibration	Asstn. Manager: Quality/ Process Assurance	Asstn. Manager: MM/ Stores	Asstn. Manager Packaging/ Dispatches	Asstn. Manager - Channel Sales; Zonal Manager	Asstn. Manager - Channel Sales	Asstn. Manager : Marketing/ BD	Asstn. Manager - Pre-Sales/tendering/ technical support	Asstn. Manager : Engineering/ system design	Asstn. Manager : I&C	Asstn. Manager O&M	Asstn. Manager Product Support / Repair	Asstn. Manager Accounts	Asstn. Manager Taxation	Asstn. Manager Finance	Asstn. Manager HR	Sr. Trainer	Asstn. Manager Purchase	Asstn. Manager Corporate Affairs / Legal
			Dev Engr, Testing & Qualification Engr	Shift supervisor	Sr Engineer - Automation	Sr Engineer - Instrumentation	Sr Engineer - Testing / Calibration	Sr Engineer - Quality/ Process Assurance	Supervisor: MM/ Stores	Packaging supervisors	Sr Sales engineer/ Territory Manager	Sr Sales Engineer	Sr Engineer: Marketing/ Sales	Sr Engineer - Pre-Sales/Tendering/ Technical support	Engineer : Engineering/ system design	Engineer- I&C	Engineer- O&M	Engineer Product Support / Repair	Jr. Manager Accounts	Jr. Manager Taxation	Jr. Manager Finance	Jr. Manager HR		Jr. Manager Purchase	Senior Legal Associate
	6	Engineer - Design , Prototyping,Testing, Product Qualification	Jr/ Trainee Dev Engr, Testing & Qualification Engr	Sr. operator Production / Line/ Process	Automation Engineer	Instrumentation Engineer	Engineer testing / Calibration	Engineer quality/ process Assurance	Sr MM/Stores Assistant	Sr Packaging Assistant	Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/Trainee Engineer - Pre-Sales/Tendering/ Technical support	Assistant Engineer - Engineering/ System Design	Assistant Engineer - I&C	Assistant Engineer - O&M	Asstt Engineer - R&M	Sr. Accounts Associate	Sr. Taxation Associate	Sr. Finance Associate	Sr. HR Associate	Trainer	Sr. Purchase Officer	Legal Associate
Execution	5	Jr / Trainee Engineer - Design / Testing	Sr Technician - Dev, Testing, Prototyping, Qualification	Operator Production / Line/ Process	Suervisor - Automation	Supervisor - Instrumentation	Supervisor - Testing / Calibration	Supervisor - Quality/ Process Assurance	MM/Stores Assistant	Packaging Assistant	Sr Sales Executive	Sr Sales Executive	Sr Sales Executive	Sr Pre Sales Executive - Pre-Sales/Tendering/ Technical support	Supervisor - Engineering/ System Design	Supervisor - I&C	Supervisor - O&M	Supervisor - R&M	Accounts Associate	Taxation Associate	Finance Associate	HR Associate	Jr Trainer	Purchase Officer	
		Sr Technician - Dev, Testing, Prototyping, Qualification			Sr Technician - Automation	Sr Technician - Instrumentation	Sr Technician - Testing / Calibration	Sr Technician Quality/ Process Assurance	MM/Stores Assistant	Packaging Assistant						Sr Technician I&C	Sr Technician O&M	Sr Technician R&M						Purchase Officer	
	4	Technician - Dev, Testing, Prototyping, Qualification	Technician - Dev, Testing, Prototyping, Qualification	Jr Operator Production / Line/ Process	Technician - Automation	Technician - Instrumentation	Technician - Testing / Calibration	Quality/ Process Assurance	Jr MM/ Stores Assistant	Jr Packaging Assistant	Sales Executive	Sales Executive	Sales Executive	Executive - Pre-Sales/ Tendering/ Tech support	Technician - Engineering/ System Design	Technician - I&C	Technician - O&M	Technician - R&M	Accounts Trainee	Taxation Trainee	Finance Trainee	HR Trainee		Purchase Assistant	
	3	Jr Technician	Jr Technician		Jr Technician	Jr Technician	Jr Technician		Sotres Helper	Packaging Helper	Sales Assistant / Jr Sales Executive	Sales Assistant / Jr Sales Executive	Sales Assistant / Jr Sales Executive	Pre-Sales Assistant / Jr Pre-Sales Executive		Jr Technician	Jr Technician	Jr Technician							
					Technician Helper	Technician Helper	Technician Helper									Technician Helper	Technician Helper	Technician Helper							

A

B

C

D

Heat Map (Occupation Map -Surveillance for OEM)

Legends: < 3% | < 5% | 15% | 25% | > 50%

Occupations >>		Research & Development		Manufacturing						Sales & Marketing					Engineering, Installation, Commissioning & After Service				Finance & Accounts			Human Resource		Procure-ment	Corporate Affairs & Legal
Tracks	NSQF LEVEL	Product Research & Design	Product Development	Production & Maintenance			Testing & Quality Assurance		Stores/ Material Management/ Inventory Control	Product Packaging & Dispatches	Channel Sales (B2C)	Institutional Sales (B2B)	Product Marketing/ Business Development	Pre-Sales/ Tendering / Technical support	Training	Product Engineering/ Integration/ System Design	Product/ System I&C	Product/ System Installation	Product/ System R&M	Audit and Accounting	Taxation	Finance (includes Budgeting & Forecasting)	Recruitment & Compensation	Learning and Development	Purcase	Corporate Affairs & Legal
Management	9	Managing Director/ Chief Executive Officer/									Chief Operating Officer/ Chairman & Managining Director /									Proprioter/ Partner					
	8, 9	VP/GM/Director /Head /Chief Engineer/ Chief Technology Officer Research & Product Development		Director/ President - Plant/ Operations & Maintenance							Director/ President : Sales/ Marketing/ Business Development					Director/ President - Projects/ Engineering/ Contracts/ after sales				Director/ President : Finance & Accounts			Director/ President : HR			Director/ President : HR	Director/ President : Corporate Affairs/ Legal
				VP/ GM- Production	VP/ GM- Maintenance		VP/ GM Testing & quality Assurance		VP/ GM - MM/ Stores		VP/ GM - Sales		VP/ GM - Marketing			VP/ GM - Engineering / System design	VP/ GM - I&C	VP/ GM - O&M	VP/ GM : Product support / Repair	VP/ GM : Accounts	VP/ GM : Taxation	VP/ GM : Finance	VP/ GM : HR		VP/ GM : Purchase	VP/ GM : Corporate Affairs / Legal
	8	Principal Engineer / Chief Architect / Research Manager	Principal Engineer / Chief Architect - Development Manager	AGM Production/ Process/ Line	AVP/ AGM - Automation	AVP/AGM - Instrumentation	AVP/AGM - Testing & Calibration	AVP/AGM - Quality Assurance	AVP/ AGM Material Management/ Stores	AVP/AGM Packaging/ Dispatches	AVP/ AGM: Channel Sales	AVP/ AGM: Institutional Sales / business development	AVP/ AGM: Marketing/ Business Development		AVP/AGM - Training	AVP/ AGM : engineering/ system design	AVP/ AGM : I&C	AVP/ AGM : O&M	AVP/ AGM : Product Support / Repair	AVP/ AGM : Accounts	AVP/ AGM : Taxation	AVP/ AGM : Finance	AVP/ AGM : HR	AVP/ AGM : Training	AVP/ AGM : Purchase	AVP/ AGM : Corporate Affairs / Legal
Middle Management	7	Sr Architect - Product Design	Program Manager - Product Development	Sr. Manager Production/ Process/ Line	Sr. Manager - Automation	Sr. Manager - Instrumentation	Sr Manager: Testing & Calibration	Sr Manager: Quality/ Process Assurance	Sr. Manager: MM/ Stores	Sr Manager Packaging/ Dispatches	Sr Manager - Channel Sales	Sr Manager - Channel Sales	Sr Manager : Marketing/ BD	Sr Manager- Pre-Sales/tendering/ technical support	Sr Manager - Training	Sr Manager - Engineering/ system design	Sr Manager - I&C	Sr Manager - O&M	Sr Manager - Product Support / Repair	Sr. Manager - Accounts	Sr. Manager - Taxation	Sr. Manager - Finance	Sr. Manager - HR	Manager - Training	Sr. Manager - Purchase	Sr. Manager - Corporate Affairs / Legal
		Architect -Product Design	Manager- Product Development	Production/ Line/ Process Incharge	Manager - Automation	Manager - Instrumentation	Manager: Testing & Calibration	Manager: Quality/ Process Assurance	Manager: MM/ Stores	Manager Packaging/ Dispatches	Manager - Channel Sales	Manager - Channel Sales	Manager : Marketing/ BD	Manager- Pre-Sales/Tendering/ Technical support	Manager - Training	Manager - Engineering/ system design	Manager - I&C	Manager - O&M	Manager - Product Support / Repair	Manager - Accounts	Manager - Taxation	Manager - Finance	Manager - HR	Master Trainer	Manager - Purchase	Manager - Corporate Affairs / Legal
	7	Sr Engineer - Design , Prototyping,Testing, Product Qualification	Asstt Product Manager, Team lead, Development Incharge	Shift Incharge	Assitant Manager - Automation	Assitant Manager - Instrumentation	Asttn. Manager: Testing & Calibration	Asttn. Manager: Quality/ Process Assurance	Asttn. Manager: MM/ Stores	Asttn. Manager Packaging/ Dispatches	Asstn. Manager - Channel Sales; Zonal Manager	Asstn. Manager - Channel Sales	Asttn. Manager : Marketing/ BD	Asstn. Manager - Pre-Sales/tendering/ technical support	Sr Trainer	Asttn. Manager : Engineering/ system design	Asttn. Manager : I&C	Asttn. Manager O&M	Asttn. Manager Product Support / Repair	Asttn. Manager Accounts	Asttn. Manager Taxation	Asttn. Manager Finance	Asttn. Manager HR	Sr. Trainer	Asttn. Manager Purchase	Asttn. Manager Corporate Affairs / Legal
			Dev Engr, Testing & Qualification Engr	Shift supervisor	Sr Engineer - Automation	Sr Engineer - Instrumentation	Sr Engineer - Testing / Calibration	Sr Engineer - Quality/ Process Assurance	Supervisor: MM/ Stores	Packaging supervisors	Sr Sales engineer/ Territory Manager	Sr Sales Engineer	Sr Engineer: Marketing/ Sales	Sr Engineer - Pre-Sales/Tendering/ Technical support		Engineer : Engineering/ system design	Engineer- I&C	Engineer- O&M	Engineer Product Support / Repair	Jr. Manager Accounts	Jr. Manager Taxation	Jr. Manager Finance	Jr. Manager HR		Jr. Manager Purchase	Senior Legal Associate
	6	Engineer - Design , Prototyping,Testing, Product Qualification	Engineer - Design , Prototyping,Testing, Product Qualification	Sr. operator Production / Line/ Process	Automation Engineer	Instrumentation Engineer	Engineer testing / Calibration	Engineer quality/ process Assurance	Sr MM/Stores Assistant	Sr Packaging Assistant	Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/ Trainee Engineer - Pre-Sales/Tendering/ Technical support	Trainer	Assistant Engineer - Engineering/ System Design	Assistant Engineer - I&C	Assistant Engineer - O&M	Asstt Engineer - R&M	Sr. Accounts Associate	Sr. Taxation Associate	Sr. Finance Associate	Sr. HR Associate	Trainer	Sr. Purchase Officer	Legal Associate
Execution	5	Jr / Trainee Engineer - Design / Testing	Jr / Trainee Engineer - Design / Testing	Operator Production / Line/ Process	Suervisor - Automation	Supervisor - Instrumentation	Supervisor - Testing / Calibration	Supervisor - Quality/ Process Assurance	MM/Stores Assistant	Packaging Assistant	Sr Sales Executive	Sr Sales Executive	Sr Sales Executive	Sr Pre Sales Executive - Pre-Sales/Tendering/ Technical support	Jr Trainer	Supervisor - Engineering/ System Design	Supervisor - I&C	Supervisor - O&M	Supervisor - R&M	Accounts Associate	Taxation Associate	Finance Associate	HR Associate	Jr Trainer	Purchase Officer	
		Sr Technician - Dev, Testing, Prototyping, Qualification	Sr Technician - Dev, Testing, Prototyping, Qualification		Sr Technician - Automation	Sr Technician - Instrumentation	Sr Technician - Testing / Calibration	Sr Technician Quality/ Process Assurance	MM/Stores Assistant	Packaging Assistant							Sr Technician I&C	Sr Technician O&M	Sr Technician R&M						Purchase Officer	
	4	Technician - Dev, Testing, Prototyping, Qualification	Technician - Dev, Testing, Prototyping, Qualification	Jr Operator Production / Line/ Process	Technician - Automation	Technician - Instrumentation	Technician - Testing / Calibration	Technician Quality/ Process Assurance	Jr MM/ Stores Assistant	Jr Packaging Assistant	Sales Executive	Sales Executive	Sales Executive	Executive - Pre-Sales/Tendering/ Tech support		Technician - Engineering/ System Design	Technician - I&C	Technician - O&M	Technician - R&M	Accounts Trainee	Taxation Trainee	Finance Trainee	HR Trainee		Purchase Assistant	
	3	Jr Technician	Jr Technician		Jr Technician	Jr Technician	Jr Technician		Sotres Helper	Packaging Helper	Sales Assistant / Jr Sales Executive	Sales Assistant / Jr Sales Executive	Sales Assistant / Jr Sales Executive	Pre-Sales Assistant / Jr Pre-Sales Executive			Jr Technician	Jr Technician	Jr Technician							
					Technician Helper	Technician Helper	Technician Helper										Technician Helper	Technician Helper	Technician Helper							

Occupations >>		Research & Development		Manufacturing				Sales & Marketing				
Tracks	NSQF LEVEL	Product Research & Design	Product Development	Production & Maintenance	Testing & Quality Assurance	Stores/ Material Management/ Inventory Control	Product Packaging & Dispatches	Channel Sales (B2C)	Institutional Sales (B2B)	Product Marketing/ Business Development	Pre-Sales/ Tendering / Technical support	Training
Management	9	Managing Director/ Chief Executive Officer/						Chief Operating Officer/ Chairman &				
	8, 9	VP/GM/Director /Head /Chief Engineer/ Chief Technology Officer Research & Product Development		Director/ President - Plant/ Operations & Maintenance				Director/ President : Sales/ Marketing/ Business Development				
				VP/ GM- Production	VP/ GM- Maintenance	VP/ GM Testing & quality Assurance	VP/ GM - MM/ Stores	VP/ GM - Sales		VP/ GM - Marketing		
	8	Principal Engineer / Chief Architect / Research Manager	Principal Engineer / Chief Architect - Development Manager	AGM Production/ Process/ Line	AVP/ AGM - Automation	AVP/AGM - Instrumneta tion	AVP/AGM - Testing & Calibration	AVP/AGM - Quality Assurance	AVP/ AGM Material Management/ Stores	AVP/AGM Packaging / Dispatches	AVP/ AGM: Channel Sales	AVP/ AGM: Institutional Sales / business development
Middle Management	7	Sr Architect - Product Design	Program Manager - Product Development	Sr. Manager Production/ Process/ Line	Sr. Manager - Automation	Sr. Manager - Instrumentation	Sr Manager: Testing & Calibration	Sr Manager: Quality/ Process Assurance	Sr. Manager: MM/ Stores	Sr Manager Packaging/ Dispatches	Sr Manager - Channel Sales	Sr Manager - Channel Sales
	7	Architect -Product Design	Manager- Product Development	Production/ Line/ Process Incharge	Manager - Automation	Manager - Instrumentation	Manager: Testing & Calibration	Manager: Quality/ Process Assurance	Manager: MM/ Stores	Manager Packaging/ Dispatches	Manager - Channel Sales	Manager - Channel Sales
	7	Sr Engineer - Design , Prototyping,Testing, Product Qualification	Asstt Product Manager, Team lead, Development Incharge	Shift Incharge	Assitant Manager - Automation	Assitant Manager - Instrumentation	Asttn. Manager: Testing & Calibration	Asttn. Manager: Quality/ Process Assurance	Asttn. Manager: MM/ Stores	Asttn. Manager Packaging/ Dispatches	Asstn. Manager - Channel Sales; Zonal Manager	Asstn. Manager - Channel Sales
	7		Dev Engr, Testing & Qualification Engr	Shift supervisor	Sr Engineer - Automation	Sr Engineer - Instrumentation	Sr Engineer - Testing / Calibration	Sr Engineer - Quality/ Process Assurance	Supervisor: MM/ Stores	Packaging supervisors	Sr Sales engineer/ Territory Manager	Sr Sales Engineer
	6	Engineer - Design , Prototyping,Testing, Product Qualification	Jr/ Trainee Dev Engr, Testing & Qualification Engr	Sr. operator Production / Line/ Process	Automation Engineer	Instrumentation Engineer	Engineer testing / Calibration	Engineer quality/ process Assurance	Sr MM/Stores Assistant	Sr Packaging Assistant	Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/ Trainee Engineer - Sales

Asttn. Manager: Marketing/ BD	Asstn. Manager - Pre-Sales/tendering/ technical support	Sr Trainer
Sr Engineer: Marketing/ Sales	Sr Engineer - Pre-Sales/Tendering/ Technical support	
Jr/ Asstt/ Trainee Engineer - Sales	Jr/ Asstt/ Trainee Engineer - Pre-Sales/Tendering/ Technical support	Trainer

Sr Manager : Marketing/ BD	Sr Manager- Pre-Sales/tendering/ technical support	Sr Manager - Training
Manager : Marketing/ BD	Manager- Pre-Sales/ Tendering/ Technical support	Manager - Training

IASC SECTOR SKILL COUNCIL

N·S·D·C National Skill Development Corporation

Occupations >>		Research & Development		Manufacturing				Sales & Marketing				
Tracks	NSQF LEVEL	Product Research & Design	Product Development	Production & Maintenance	Testing & Quality Assurance	Stores/ Material Management/ Inventory Control	Product Packaging & Dispatches	Channel Sales (B2C)	Institutional Sales (B2B)	Product Marketing/ Business Development	Pre-Sales/ Tendering / Technical support	Training
Execution	5	Jr / Trainee Engineer - Design / Testing Sr Technician - Dev, Testing, Prototyping, Qualification	Sr Technician - Dev, Testing, Prototyping, Qualification	Operator Production / Line/ Process	Suervisor - Automation Sr Technician - Automation	Supervisor - Instrumentation Sr Technician - Instrumentation	Supervisor - Testing / Calibration Sr Technician - Testing / Calibration	Supervisor - Quality/ Process Assurance Sr Technician Quality/ Process Assurance	MM/Stores Assistant MM/Stores Assistant	Packaging Assistant Packaging Assistant	Sr Sales Executive	Sr Sales Executive	Sr Sales Executive	Sr Pre Sales Executive - Pre-Sales/Tendering/ Technical support	Jr Trainer
	4	Technician - Dev, Testing, Prototyping, Qualification	Technician - Dev, Testing, Prototyping, Qualification	Jr Operator Production / Line/ Process	Technician - Automation	Technician - Instrumentation	Technician - Testing / Calibration	Technician Quality/ Process Assurance	Jr MM/ Stores Assistant	Jr Packaging Assistant	Sales Executive	Sales Executive	Sales Executive	Executive - Pre-Sales/ Tendering/ Tech support	
	3	Jr Technician	Jr Technician		Jr Technician Technician Helper	Jr Technician Technician Helper	Jr Technician Technician Helper		Sotres Helper	Packaging Helper	Sales Assistant / Jr Sales Executive	Sales Assistant / Jr Sales Executive	Sales Assistant / Jr Sales Executive	Pre-Sales Assistant / Jr Pre-Sales Executive	

	Occupations >>	Engineering, Installation, Commissioning & After Service				Finance & Accounts			Human Resource		Procure-ment	Corporate Affairs & Legal
Tracks	NSQF LEVEL	Product Engineering/ Integration/ System Design	Product/ System I&C	Product/ System Installation	Product/ System R&M	Audit and Accounting	Taxation	Finance (includes Budgeting & Forecasting)	Recruitment & Compensation	Learning and Development	Purcase	Corporate Affairs & Legal
Management	9	Chairman / Proprioter/ Partner										
	8,9	Director/ President - Projects/ Engineering/ Contracts/ after sales				Director/ President : Finance & Accounts			Director/ President : HR		Director/ President : HR	Director/ President : Corporate Affairs/ Legal
	8,9	VP/ GM - Engineering/ System design	VP/ GM - I&C	VP/ GM - O&M	VP/ GM : Product support / Repair	VP/ GM : Accounts	VP/ GM : Taxation	VP/ GM : Finance	VP/ GM : HR		VP/ GM : Purchase	VP/ GM : Corporate Affairs / Legal
	8	AVP/ AGM : engineering/ system design	AVP/ AGM : I&C	AVP/ AGM : O&M	AVP/ AGM : Product Support / Repair	AVP/ AGM : Accounts	AVP/ AGM : Taxation	AVP/ AGM : Finance	AVP/ AGM : HR	AVP/ AGM : Training	AVP/ AGM : Purchase	AVP/ AGM : Corporate Affairs / Legal
Middle Management	7	Sr Manager - Engineering/ system design	Sr Manager - I&C	Sr Manager - O&M	Sr Manager - Product Support / Repair	Sr. Manager - Accounts	Sr. Manager - Taxation	Sr. Manager - Finance	Sr. Manager - HR	Manager - Training	Sr. Manager - Purchase	Sr. Manager - Corporate Affairs / Legal
	7	Manager - Engineering/ system design	Manager - I&C	Manager - O&M	Manager - Product Support / Repair	Manager - Accounts	Manager - Taxation	Manager - Finance	Manager - HR	Master Trainer	Manager - Purchase	Manager - Corporate Affairs / Legal
	7	Asttn. Manager : Engineering/ system design	Asttn. Manager : I&C	Asttn. Manager O&M	Asttn. Manager Product Support / Repair	Asttn. Manager Accounts	Asttn. Manager Taxation	Asttn. Manager Finance	Asttn. Manager HR	Sr. Trainer	Asttn. Manager Purchase	Asttn. Manager Corporate Affairs / Legal
	7	Engineer : Engineering/ system design	Engineer- I&C	Engineer- O&M	Engineer Product Support / Repair	Jr. Manager Accounts	Jr. Manager Taxation	Jr. Manager Finance	Jr. Manager HR		Jr. Manager Purchase	Senior Legal Associate
	6	Assistant Engineer - Engineering/ System Design	Assistant Engineer - I&C	Assistant Engineer - O&M	Asstt Engineer - R&M	Sr. Accounts Associate	Sr. Taxation Associate	Sr. Finance Associate	Sr. HR Associate	Trainer	Sr. Purchase Officer	Legal Associate

		Engineering, Installation, Commissioning & After Service				Finance & Accounts			Human Resource		Procure-ment	Corporate Affairs & Legal
		Product Engineering/ Integration/ System Design	Product/ System I&C	Product/ System Installation	Product/ System R&M	Audit and Accounting	Taxation	Finance (includes Budgeting & Forecasting)	Recruitment & Compensation	Learning and Development	Purcase	Corporate Affairs & Legal
Execution	5	Supervisor - Engineering/ System Design	Supervisor - I&C Sr Technician I&C	Supervisor - O&M Sr Technician O&M	Supervisor - R&M Sr Technician R&M	Accounts Associate	Taxation Associate	Finance Associate	HR Associate	Jr Trainer	Purchase Officer Purchase Officer	
	4	Technician - Engineering/ System Design	Technician - I&C	Technician - O&M	Technician - R&M	Accounts Trainee	Taxation Trainee	Finance Trainee	HR Trainee		Purchase Assistant	
	3		Jr Technician	Jr Technician	Jr Technician							
			Technician Helper	Technician Helper	Technician Helper							

BACK

17. Job Roles in Surveillance Sub-sector for OEM

Major Roles Related to OEMs in the Surveillance segment

Listed below are roles which comprise key skills related to equipment manufacturers in the Surveillance segment. Other roles relating to higher management and supporting functions such as finance, administration, purchase, HR and corporate affairs are not included - although these are identified in the OM. The job role identification is based on industry interaction, feedback and data received from various emails, visits and questionnaires.

Job Roles in general have Junior, Assistant, Senior classifications which convey their depth of knowledge and skills in the occupation. These have not been expanded in the following list, in the interest of clarity.

QPs have been defined for the highlighted Job Roles and presented in this QRC.

Statistics : 159

A&T	38
D&D	25
I&C	41
O&M	18
R&M	33
S&M	6
Pur	6

Sl.	Job Role	Segment	Occupation	NSQF Level	Entry Level (Y/N)
1	Assembly Line Manager	SURV	A&T	7	N
2	Assembly Line Supervisor	SURV	A&T	5	N
3	Asstt Engineer - Repair	SURV	Repair	5	N
4	Asstt Manager - Product Support / Repair	SURV	Repair	5	N
5	Asstt/Jr Engineer - Facility /Plant Operation & Maintenance	SURV	O&M	5	Y
6	Automated PCB Assembly Operator	SURV	A&T	4	Y
7	Automated Testing Design Engineer	SURV	D&D	5	Y
8	Automated Testing Engineer	SURV	A&T	5	Y
9	**Automation Solution Engineer**	**SURV**	**I&C, A&T, D&D**	**5**	Y
10	Biometric Devices Troubleshooter	SURV	I&C	3	Y
11	**Building Automation Engineer**	**SURV**	**I&C, A&T, D&D**	**5**	**Y**
12	Bulletproof Solutions Specialist	SURV	I&C	3	Y
13	CCTV & Recorders Troubleshooter	SURV	I&C	3	Y
14	CCTV Installation & Commissioning Supervisor	SURV	I&C	5	N
15	CCTV Operator	SURV	O&M	4	Y
16	Command & Control Management System Specialist	SURV	I&C	4	N

17	Data Specialist - Command & Control Management	SURV	I&C	4	N
18	Development Manager (Surveillance)	SURV	D&D	7	N
19	Development Test & QA Manager	SURV	D&D	7	N
20	Documentation Manager	SURV	D&D, A&T	7	N
21	Embedded Instrumentation Architect	SURV	D&D	6	N
22	**Embedded Instrumentation Engineer**	SURV	**R&M, D&D, A&T**	**5**	**Y**
23	Embedded System Tester	SURV	D&D, A&T	5	Y
24	Engineer - Product Support / Repair	SURV	Repair	6	N
25	Engineer, Design	SURV	D&D	6	Y
26	Engineer, Packaging	SURV	D&D	6	Y
27	Engineer, Prototyping	SURV	D&D	6	Y
28	Engineer, Testing	SURV	D&D	6	Y
29	Engineer, UI & Ergonomics	SURV	D&D	6	Y
30	Engineer, Vendor Development	SURV	D&D	6	Y
31	Face Recognition system Specialist/ Troubleshooter	SURV	I&C	4	N
32	Firmware Programmer / Software Programmer	SURV	A&T	4	Y
33	Firmware Tester / Software Tester	SURV	A&T	4	Y
34	Hardware/Firmware Manager	SURV	D&D, A&T	7	N
35	High Security Vehicles Operator	SURV	O&M	3	Y
36	High Security Vehicles Troubleshooter	SURV	I&C	3	Y
37	ID Card, Badge Reader Troubleshooter	SURV	I&C	3	Y
38	Inspection Supervisor (Surveillance)	SURV	A&T	5	N
39	Inspection Technician (Surveillance)	SURV	A&T	3	Y
40	Installation & Commissioning Engineer (Surveillance-Multiskill)	SURV	I&C	5	Y
41	Installation & Commissioning Supervisor (Multiskill)	SURV	I&C	5	N
42	Installation & Commissioning Technician (CCTV & Recorders)	SURV	I&C	3	Y
43	Installation & Commissioning Technician (Electronic lockers)	SURV	I&C	3	Y
44	Installation & Commissioning Technician (Electronically Controlled Access gates/systems)	SURV	I&C	3	Y
45	Installation & Commissioning Technician (Fire Alarm Devices)	SURV	I&C	3	Y
46	Installation & Commissioning Technician (ID Card, Badge Reader)	SURV	I&C	3	Y
47	Installation & Commissioning Technician (Intrusion alarms)	SURV	I&C	3	Y
48	Installation & Commissioning Technician (Mobile DVR)	SURV	I&C	3	Y
49	Installation & Commissioning Technician (Time & attendance System solutions)	SURV	I&C	3	Y
50	Installation & Commissioning Technician (Video Door Phone)	SURV	I&C	3	Y

51	Installation & Commissioning Technician (Advanced Surveillance Equipment)	SURV	I&C	3	Y
52	Installation & Commissioning Technician (Audio system)	SURV	I&C	3	Y
53	Installation & Commissioning Technician (Biometric Devices)	SURV	I&C	3	Y
54	Installation & Commissioning Technician (Building Automation Control Panel)	SURV	I&C	3	Y
55	Installation & Commissioning Technician (Metal Detectors)	SURV	I&C	3	Y
56	Installation & Commissioning Technician (Perimeter Security)	SURV	I&C	3	Y
57	Installation & Commissioning Technician (Wireless Devices)	SURV	I&C	3	Y
58	Installation & Commissioning Technician (X Ray Detectors)	SURV	I&C	4	N
59	Intrusion Alarms Troubleshooter	SURV	I&C	3	Y
60	Jr Technician - Repair	SURV	Repair	3	Y
61	Manager - Product Support / Repair	SURV	Repair	6	N
62	Mechatronics Engineer	SURV	A&T	7	N
63	Mechatronics Supervisor	SURV	A&T	5	N
64	Mechatronics Technician	SURV	A&T	4	N
65	Mobile DVR Troubleshooter	SURV	I&C	3	Y
66	Module Assembly & Wiring Technician	SURV	A&T	3	Y
67	Module Test Engineer	SURV	A&T	7	N
68	Module Test Technician	SURV	A&T	4	Y
69	Night vision Testing Technician	SURV	A&T	3	Y
70	Online support Technician	SURV	S&M	3	Y
71	Operator (Advanced Surveillance Equipment)	SURV	O&M	3	Y
72	Operator (Building Automation Control Panel)	SURV	O&M	3	Y
73	Operator (CCTV & Recorders)	SURV	O&M	3	Y
74	Operator (Fire Alarm Control Panel)	SURV	O&M	3	Y
75	Operator (Multiskill - panels)	SURV	O&M	4	Y
76	Operator (Surveillance System Control Panel)	SURV	O&M	3	Y
77	Operator (Wireless Devices)	SURV	O&M	3	Y
78	PCB & Module Assembly Technician	SURV	D&D	4	Y
79	PCB & Module Test Technician	SURV	D&D	4	Y
80	PCB Assembly Technician	SURV	A&T	3	Y
81	PCB Soldering Technician	SURV	A&T	3	Y
82	PCB Test Technician	SURV	A&T	4	Y
83	PCB Troubleshooter	SURV	A&T	3	Y
84	Presales Engineer (Surveillance)	SURV	S&M	5	Y
85	Presales Technician (Surveillance)	SURV	S&M	3	Y
86	Procurement Engineer (Technical)	SURV	Purchase	7	N
87	Procurement Officer (Technical)	SURV	Purchase	6	N
88	Product / System Assembly Technician	SURV	A&T	4	Y
89	Product / System Test Engineer	SURV	A&T	7	N
90	Product / System Test Technician	SURV	A&T	4	Y
91	Product Architect	SURV	D&D	7	N
92	Product QA Engineer	SURV	D&D	7	N
93	Programmer ID CARD/Badge	SURV	I&C	3	Y
94	Project Co coordinator (Surveillance)	SURV	S&M	5	Y
95	Purchase Manager	SURV	Purchase	7	N

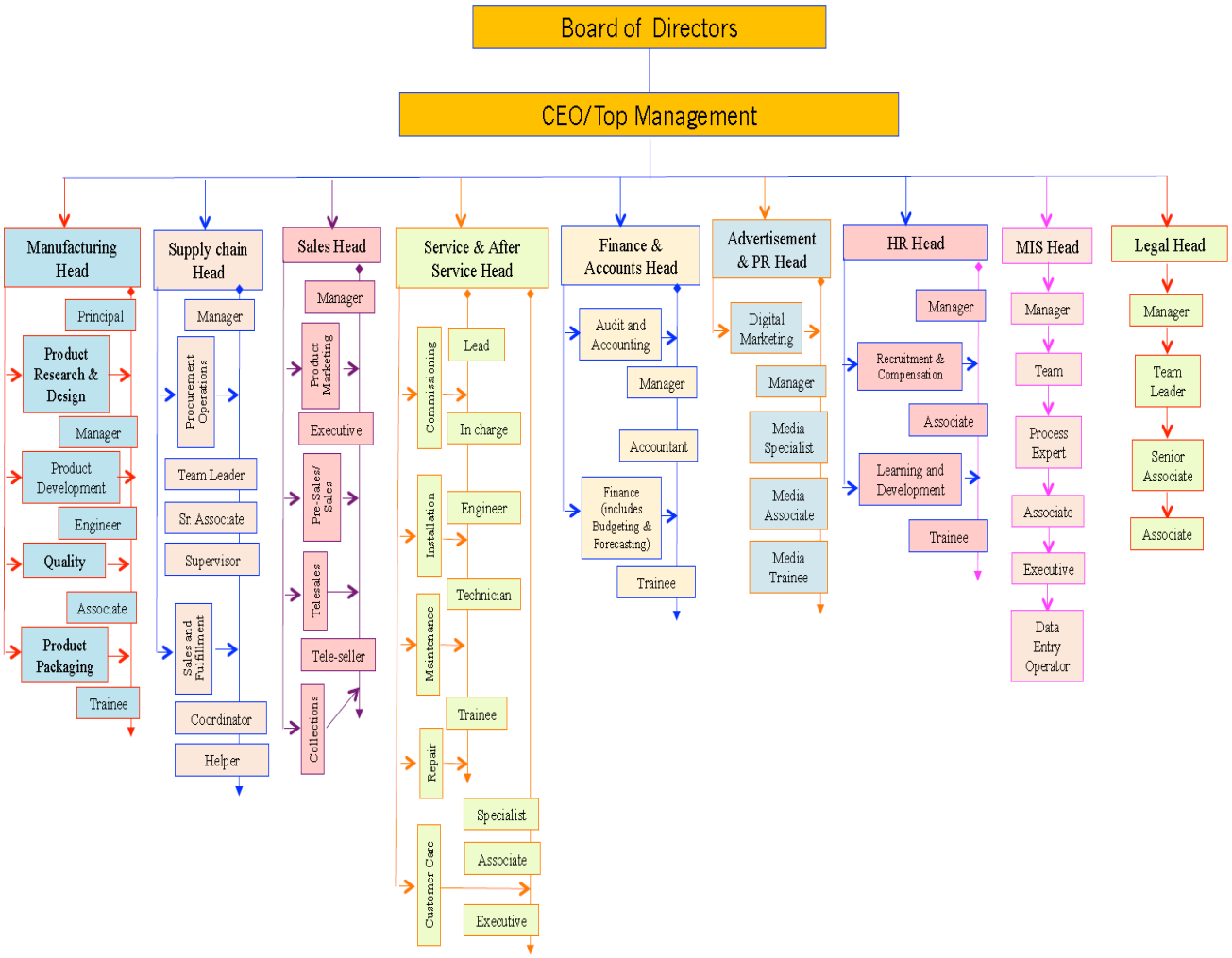
96	QA Engineer	SURV	A&T	7	N
97	QA Supervisor	SURV	A&T	5	N
98	QA Technician	SURV	A&T	4	Y
99	Repair & Maintenance Specialist (Face Recognition System)	SURV	R&M	4	N
100	Repair & Maintenance Technician (Bio Metric Solution)	SURV	R&M	3	Y
101	Repair & Maintenance Technician (CCTV & Recorders)	SURV	R&M	3	Y
102	Repair & Maintenance Technician (Electronic Lockers)	SURV	R&M	3	Y
103	Repair & Maintenance Technician (Fire alarm systems)	SURV	R&M	3	Y
104	Repair & Maintenance Technician (ID Card/Badge Reader)	SURV	R&M	3	Y
105	Repair & Maintenance Technician (Metal Detectors)	SURV	R&M	3	Y
106	Repair & Maintenance Technician (Perimeter Security)	SURV	R&M	3	Y
107	Repair & Maintenance Technician (Time & attendance System solutions)	SURV	R&M	3	Y
108	Repair & Maintenance Technician (Time & Attendance systems)	SURV	R&M	3	Y
109	Repair & Maintenance Technician (Video Door Phones)	SURV	R&M	3	Y
110	Repair & Maintenance Technician (Wireless Devices)	SURV	R&M	4	N
111	Repair & Maintenance Technician(Intrusion Alarms)	SURV	R&M	3	Y
112	Repair Maintenance Technician (X Ray Detectors)	SURV	R&M	4	N
113	Repair Technician (Advanced Surveillance Equipment)	SURV	R&M	4	N
114	Repair Technician (Biometric Devices)	SURV	R&M	3	Y
115	Repair Technician (CCTV & Recorders)	SURV	R&M	3	Y
116	Repair Technician (Intrusion alarms)	SURV	R&M	3	Y
117	Repair Technician (Mobile DVR)	SURV	R&M	3	Y
118	Repair Technician (Multiskill)	SURV	R&M	4	N
119	Repair Technician (Surveillance - Multiskill)	SURV	R&M	4	N
120	Repair Technician (Video Door Phones)	SURV	R&M	3	Y
121	Repair Technician (Wireless Devices)	SURV	R&M	4	N
122	Site Supervisor (Electronically Controlled Access gates/systems)	SURV	I&C	3	Y
123	Site Visit supervisor (Surveillance)	SURV	S&M	5	N
124	Site visit Technician (Surveillance)	SURV	S&M	3	Y
125	Software Architect (Surveillance)	SURV	A&T	7	N
126	Software Designer	SURV	D&D	6	Y
127	Software Developer	SURV	D&D	5	Y
128	Software Development Manager	SURV	D&D	8	N
129	Software Manager	SURV	A&T	7	N
130	Software Programmer	SURV	A&T	4	Y
131	Software Tester	SURV	D&D	4	Y
132	Sr Technician - Repair	SURV	Repair	5	N

133	Supervisor - Repair	SURV	Repair	5	N
134	Supervisor - Facility /Plant Operation & Maintenance	SURV	O&M	5	N
135	Supervisor (Building automation)	SURV	I&C,O&M	5	N
136	Supervisor (CCTV & Recorders)	SURV	O&M	5	N
137	Supervisor (Fire alarm systems)	SURV	O&M	5	N
138	Supervisor (Intrusion alarms)	SURV	O&M	5	N
139	Supervisor (Video Door Phones)	SURV	O&M	5	N
140	Systems Engineer	SURV	D&D	7	N
141	Technician - Facility/Plant Operation & Maintenance	SURV	O&M	3	Y
142	Technician - Cabling (multi skill)	SURV	I&C	4	Y
143	Technician - Data Cabling	SURV	A&T	3	Y
144	Technician - Fire Alarm Cabling	SURV	A&T	3	Y
145	Technician - Intercom Cabling	SURV	A&T	3	Y
146	Technician - Power Cabling	SURV	A&T	3	Y
147	Technician - Repair	SURV	Repair	4	N
148	Technician - Structured Cabling	SURV	A&T	3	Y
149	Technician - Video/CCTV Cabling	SURV	A&T	3	Y
150	Technician (Building automation - multi skill)	SURV	I&C,O&M	4	Y
151	Technician Helper - Repair	SURV	Repair	3	Y
152	Test Manager (Surveillance)	SURV	A&T	7	N
153	Time & Attendance System Troubleshooter	SURV	I&C	3	Y
154	Traffic Solution System Specialist	SURV	I&C	4	N
155	Vendor Development Engineer (Technical)	SURV	Purchase	6	N
156	Vendor Development Manager	SURV	Purchase	7	N
157	Vendor Development Officer (Technical)	SURV	Purchase	5	Y
158	Video Door Phones Troubleshooter	SURV	I&C	3	Y
159	Wireless Devices Troubleshooter	SURV	I&C	4	N

BACK

18. Occupational Map - Surveillance Sub-sector for System Integrators (SI)

Model Organizational structure (for large companies)



BACK

IASC SECTOR SKILL COUNCIL

N·S·D·C National Skill Development Corporation

Occupations	>>	Sales & Marketing					Engineering, Installation, Commissioning, Operations & After Service				Finance & Accounts			Human Resource		Procure-ment	Corporate Affairs & Legal
Tracks	NSQF LEVEL	Channel Sales (B2C)	Institutional Sales (B2B)	Product Marketing/ Business Development	Pre-Sales/ Tendering / Technical support	Training	Product Engineering/ System Design	Product/ System I&C	Product/ System O&M	Product/ System R&M	Audit and Accounting	Taxation	Finance (includes Budgeting & Forecasting)	Recruitment & Compensation	Learning and Development	Purchase	Corporate Affairs & Legal
Management	8,9	Director/ President : Sales/ Marketing/ Business Development					Director/ President - Projects/ Engineering/ Contracts/ After Sales				Director/ President : Finance & Accounts			Director/ President : HR		Director/ President : HR	Director/ President : Corporate Affairs/ Legal
	8	VP/ GM: Sales		VP/ GM : Marketing			VP/ GM : Engineering/ System Design	VP/ GM : I&C	VP/ GM : O&M	VP/ GM : Product support / Repair	VP/ GM : Accounts	VP/ GM : Taxation	VP/ GM : Finance	VP/ GM : HR	VM/GM Training	VP/ GM : Purchase	VP/ GM : Corporate Affairs / Legal
		AVP/ AGM: Channel Sales	AVP/ AGM: Institutional Sales / Business Development	AVP/ AGM: Marketing/ Business Development		AVP/AGM - S&M Training	AVP/ AGM : Engineering/ System Design	AVP/ AGM : I&C	AVP/ AGM : O&M	AVP/ AGM : Support & Repair	AVP/ AGM : Accounts	AVP/ AGM : Taxation	AVP/ AGM : Finance	AVP/ AGM : HR	AVP/ AGM : Training	AVP/ AGM : Purchase	AVP/ AGM : Corporate Affairs / Legal
Middle Management	7	Sr. Manager: Channel Sales	Sr. Manager: Channel Sales	Sr. Manager : Marketing/ BD	Sr. Manager- Pre-Sales/ Tendering/ Technical Support rt	Sr. Manager - S&M Training	Sr. Manager - Engineering & System Design	Sr. Manager - I&C	Sr. Manager - O&M	Sr. Manager - Support & Repair	Sr. Manager - Accounts	Sr. Manager - Taxation	Sr. Manager - Finance	Sr. Manager - HR	Manager - Training	Sr. Manager - Purchase	Sr. Manager - Corporate Affairs / Legal
		Manager: Channel Sales	Manager: Channel Sales	Manager : Marketing/ BD	Manager- Pre-Sales/ Tendering/ Technical Support	M...nag... - S&M Trai...ng	Manager - Engineering/ & System Design	Manager - I&C	Manager - O&M	Manager Support & Repair	Manager - Accounts	Manager - Taxation	Manager - Finance	Man...er - HR	Master Trainer	Manager - Purchase	Manager - Corporate Affairs / Legal
		Asstn. Manager: Channel Sales; Zonal Manager	Asstn. Manager: Channel Sales	Asttn. Manager : Marketing/ BD	Asst. Mgr: Pre-Sales/ Tendering/ Technical Support	Sr. S&M Trainer	Asttn. Manager Engineering &/ System Design / Sr. Engineer Engineering &/ System Design	Asttn. Manager I&C / Sr. Engineer I&C	Asttn. Manager O&M / Sr. Engineer- O&M	Asttn. Manager Support & Repair / Engineer Support & Repair	Manager - Accounts	Asttn. Manager Taxation	Asttn. Manager Finance	Asttn. Manager HR	Sr. Trainer	Asttn. Manager Purchase	Asttn. Manager Corporate Affairs / Legal
		Sr. Sales Engineer/ Territory Manager	Sr. Sales Engineer	Sr. Engineer: Marketing/ Sales	Sr. Engineer: Pre-Sales/ Tendering/ Technical Support	S&M Trainer					Asttn. Manager Accounts	Jr. Manager Taxation	Jr. Manager Finance	Jr. Manager HR		Jr. Manager Purchase	Senior Legal Associate
	6	Sales Executive / Engineer	Sales Executive / Engineer	Sales Executive / Engineer	Sales Executive / Engineer	S&M Trainer	Engineer Systems/ Design/Hardware /Firmware/ Software/ Programming	Sr Supervisor/ Engineer I&C	Sr Supervisor/ Engineer O&M	Sr Supervisor/ Engineer R&M	Jr. Manager Accounts	Sr. Taxation Associate	Sr. Finance Associate	Sr. HR Associate	Trainer	Sr. Purchase Officer	Legal Associate
Execution	5	Jr/Asstt/Trainee Engineer -Pre Sales	Jr/Asstt/Trainee Engineer -Pre Sales	Jr/Asstt/Trainee Engineer - Pre Sales	Jr/Asstt/Trainee Engineer / Specialist - Pre-Sales/ Tendering/ Tech Support	S&M Trainer	Jr /Asstt / Trainee Engineer System Design	Supervisor I&C	Supervisor O&M	Supervisor R&M	Sr. Accounts Associate	Taxation Associate	Finance Associate	HR Associate	Jr Trainer	Purchae Officer	Assistant Legal Associate
		Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive			Sr Technician I&C	Sr Technician O&M	Sr Technician R&M							
	4	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive			Technician I&C	Technician O&M	Technician R&M	Accounts Associate	Taxation Associate	Finance Associate	HR Associate		Purchae Assistant	
	3							Jr / Asstt Technician C&I	Jr / Asstt Technician O&M	Jr / Asstt Technician	Accounts Trainee	Taxation Trainee	Finance Trainee	HR Trainee			

A B C D

Heat Map (OM - Surveillance Segment for SI)

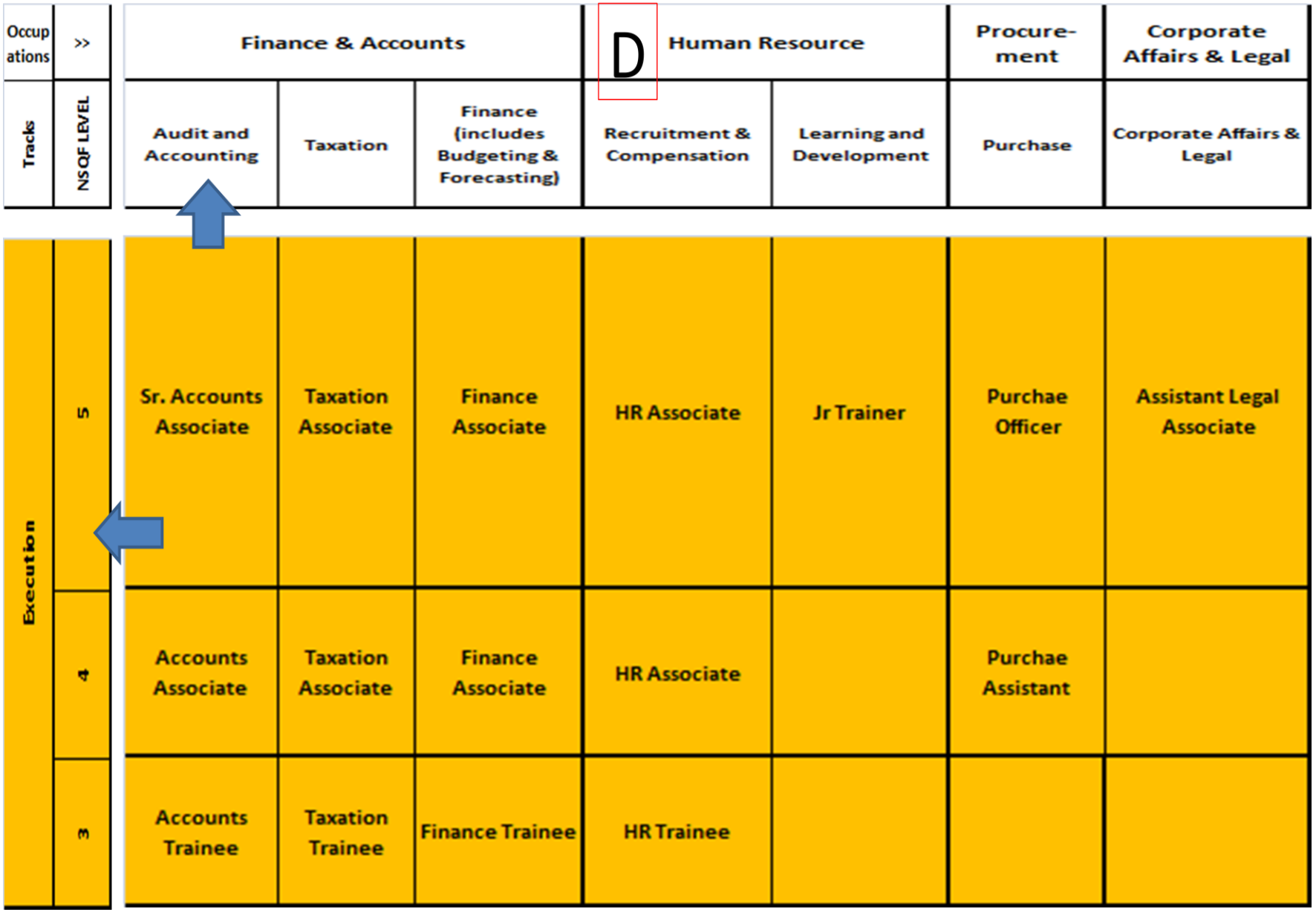
Legends: < 3% | < 5% | 15% | 25% | > 50%

Occupations	NSQF LEVEL	Sales & Marketing					Engineering, Installation, Commissioning, Operations & After Service				Finance & Accounts			Human Resource		Procurement	Corporate Affairs & Legal
Tracks		Channel Sales (B2C)	Institutional Sales (B2B)	Product Marketing/ Business Development	Pre-Sales/ Tendering / Technical support	Training	Product Engineering/ System Design	Product/ System I&C	Product/ System O&M	Product/ System R&M	Audit and Accounting	Taxation	Finance (includes Budgeting & Forecasting)	Recruitment & Compensation	Learning and Development	Purchase	Corporate Affairs & Legal
Management	8,9	Director/ President : Sales/ Marketing/ Business Development					Director/ President - Projects/ Engineering/ Contracts/ After Sales				Director/ President : Finance & Accounts			Director/ President : HR		Director/ President : HR	Director/ President : Corporate Affairs/ Legal
	8	VP/ GM: Sales		VP/ GM : Marketing			VP/ GM : Engineering/ System Design	VP/ GM : I&C	VP/ GM : O&M	VP/ GM : Product support / Repair	VP/ GM : Accounts	VP/ GM : Taxation	VP/ GM : Finance	VP/ GM : HR	VM/GM Training	VP/ GM : Purchase	VP/ GM : Corporate Affairs / Legal
		AVP/ AGM: Channel Sales	AVP/ AGM: Institutional Sales / Business Development	AVP/ AGM: Marketing/ Business Development		AVP/AGM - S&M Training	AVP/ AGM : Engineering/ System Design	AVP/ AGM : I&C	AVP/ AGM : O&M	AVP/ AGM : Support & Repair	AVP/ AGM : Accounts	AVP/ AGM : Taxation	AVP/ AGM : Finance	AVP/ AGM : HR	AVP/ AGM : Training	AVP/ AGM : Purchase	AVP/ AGM : Corporate Affairs / Legal
Middle Management	7	Sr. Manager: Channel Sales	Sr. Manager: Channel Sales	Sr. Manager : Marketing/ BD	Sr. Manager- Pre-Sales/ Tendering/ Technical Support	Sr. Manager - S&M Training	Sr. Manager - Engineering & System Design	Sr. Manager - I&C	Sr. Manager - O&M	Sr. Manager - Support & Repair	Sr. Manager - Accounts	Sr. Manager - Taxation	Sr. Manager - Finance	Sr. Manager - HR	Manager - Training	Sr. Manager - Purchase	Sr. Manager - Corporate Affairs / Legal
		Manager: Channel Sales	Manager: Channel Sales	Manager : Marketing/ BD	Manager- Pre-Sales/ Tendering/ Technical Support	Manager - S&M Training	Manager - Engineering/ & System Design	Manager - I&C	Manager - O&M	Manager Support & Repair	Manager - Accounts	Manager - Taxation	Manager - Finance	Manager - HR	Master Trainer	Manager - Purchase	Manager - Corporate Affairs / Legal
		Asstn. Manager: Channel Sales; Zonal Manager	Asstn. Manager: Channel Sales	Asttn. Manager : Marketing/ BD	Asst. Mgr: Pre-Sales/ Tendering/ Technical Support	Sr. S&M Trainer	Asttn. Manager Engineering &/ System Design / Sr. Engineer Engineering &/ System Design	Asttn. Manager I&C / Sr. Engineer I&C	Asttn. Manager O&M / Sr. Engineer- O&M	Asttn. Manager Support & Repair / Engineer Support & Repair	Manager - Accounts	Asttn. Manager Taxation	Asttn. Manager Finance	Asttn. Manager HR	Sr. Trainer	Asttn. Manager Purchase	Asttn. Manager Corporate Affairs / Legal
		Sr. Sales Engineer/ Territory Manager	Sr. Sales Engineer	Sr. Engineer: Marketing/ Sales	Sr. Engineer: Pre-Sales/ Tendering/ Technical Support	S&M Trainer					Asttn. Manager Accounts	Jr. Manager Taxation	Jr. Manager Finance	Jr. Manager HR		Jr. Manager Purchase	Senior Legal Associate
	6	Sales Executive / Engineer	Sales Executive / Engineer	Sales Executive / Engineer	Sales Executive / Engineer	S&M Trainer	Engineer Systems/ Design/Hardware /Firmware/ Software/ Programming	Sr Supervisor/ Engineer I&C	Sr Supervisor/ Engineer O&M	Sr Supervisor/ Engineer R&M	Jr. Manager Accounts	Sr. Taxation Associate	Sr. Finance Associate	Sr. HR Associate	Trainer	Sr. Purchase Officer	Legal Associate
Execution	5	Jr/Asstt/Trainee Engineer -Pre Sales	Jr/Asstt/Trainee Engineer -Pre Sales	Jr/Asstt/Trainee Engineer - Pre Sales	Jr/Asstt/Trainee Engineer / Specialist - Pre-Sales/ Tendering/ Tech Support	S&M Trainer	Jr /Asstt / Trainee Engineer System Design	Supervisor I&C	Supervisor O&M	Supervisor R&M	Sr. Accounts Associate	Taxation Associate	Finance Associate	HR Associate	Jr Trainer	Purchae Officer	Assistant Legal Associate
		Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive			Sr Technician I&C	Sr Technician O&M	Sr Technician R&M							
	4	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive			Technician I&C	Technician O&M	Technician R&M	Accounts Associate	Taxation Associate	Finance Associate	HR Associate		Purchae Assistant	
	3							Jr / Asstt Technician C&I	Jr / Asstt Technician O&M	Jr / Asstt Technician	Accounts Trainee	Taxation Trainee	Finance Trainee	HR Trainee			

Occupations	>>	Sales & Marketing					Engineering, Installation, Commissioning, Operations & After Service			
Tracks	NSQF LEVEL	Channel Sales (B2C)	Institutional Sales (B2B)	Product Marketing/ Business Development	Pre-Sales/ Tendering / Technical support	Training	Product Engineering/ System Design	Product/ System I&C	Product/ System O&M	Product/ System R&M
Management	8,9	Director/ President : Sales/ Marketing/ Business Development					Director/ President - Projects/ Engineering/ Contracts/ After Sales			
	8	VP/ GM: Sales		VP/ GM : Marketing			VP/ GM : Engineering/ System Design	VP/ GM : I&C	VP/ GM : O&M	VP/ GM : Product support / Repair
		AVP/ AGM: Channel Sales	AVP/ AGM: Institutional Sales / Business Development	AVP/ AGM: Marketing/ Business Development		AVP/AGM - S&M Training	AVP/ AGM : Engineering/ System Design	AVP/ AGM : I&C	AVP/ AGM : O&M	AVP/ AGM : Support & Repair
Middle Management	7	Sr. Manager: Channel Sales	Sr. Manager: Channel Sales	Sr. Manager : Marketing/ BD	Sr. Manager- Pre-Sales/ Tendering/ Technical Support	Sr. Manager - S&M Training	Sr. Manager - Engineering & System Design	Sr. Manager - I&C	Sr. Manager - O&M	Sr. Manager - Support & Repair
		Manager: Channel Sales	Manager: Channel Sales	Manager : Marketing/ BD	Manager- Pre-Sales/ Tendering/ Technical Support	Manager - S&M Training	Manager - Engineering/ & System Design	Manager - I&C	Manager - O&M	Manager Support & Repair
		Asstn. Manager: Channel Sales; Zonal Manager	Asstn. Manager: Channel Sales	Asttn. Manager : Marketing/ BD	Asst. Mgr: Pre-Sales/ Tendering/ Technical Support	Sr. S&M Trainer	Asttn. Manager Engineering &/ System Design / Sr. Engineer Engineering &/ System Design	Asttn. Manager I&C / Sr. Engineer I&C	Asttn. Manager O&M / Sr. Engineer- O&M	Asttn. Manager Support & Repair / Engineer Support & Repair
		Sr. Sales Engineer/ Territory Manager	Sr. Sales Engineer	Sr. Engineer: Marketing/ Sales	Sr. Engineer: Pre-Sales/ Tendering/ Technical Support	S&M Trainer				
	6	Sales Executive / Engineer	Sales Executive / Engineer	Sales Executive / Engineer	Sales Executive / Engineer	S&M Trainer	Engineer Systems/ Design/Hardware /Firmware/ Software/ Programming	Sr Supervisor/ Engineer I&C	Sr Supervisor/ Engineer O&M	Sr Supervisor/ Engineer R&M

Occupations	>>	Sales & Marketing				B	Engineering, Installation, Commissioning, Operations & After Service			
Tracks	NSQF LEVEL	Channel Sales (B2C)	Institutional Sales (B2B)	Product Marketing/ Business Development	Pre-Sales/ Tendering / Technical support	Training	Product Engineering/ System Design	Product/ System I&C	Product/ System O&M	Product/ System R&M
Execution	5	Jr/Asstt/Trainee Engineer -Pre Sales	Jr/Asstt/Trainee Engineer -Pre Sales	Jr/Asstt/Trainee Engineer - Pre Sales	Jr/Asstt/Trainee Engineer / Specialist - Pre-Sales/ Tendering/ Tech Support	S&M Trainer	Jr /Asstt / Trainee Engineer System Design	Supervisor I&C	Supervisor O&M	Supervisor R&M
		Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive			Sr Technician I&C	Sr Technician O&M	Sr Technician R&M
	4	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive			Technician I&C	Technician O&M	Technician R&M
	3							Jr / Asstt Technician C&I	Jr / Asstt Technician O&M	Jr / Asstt Technician

Occupations	>>	Finance & Accounts			Human Resource		Procure-ment	Corporate Affairs & Legal
Tracks	NSQF LEVEL	Audit and Accounting	Taxation	Finance (includes Budgeting & Forecasting)	Recruitment & Compensation	Learning and Development	Purchase	Corporate Affairs & Legal
Management	8,9	Director/ President : Finance & Accounts			Director/ President : HR		Director/ President : HR	Director/ President : Corporate Affairs/ Legal
	8	VP/ GM : Accounts	VP/ GM : Taxation	VP/ GM : Finance	VP/ GM : HR	VM/GM Training	VP/ GM : Purchase	VP/ GM : Corporate Affairs / Legal
		AVP/ AGM : Accounts	AVP/ AGM : Taxation	AVP/ AGM : Finance	AVP/ AGM : HR	AVP/ AGM : Training	AVP/ AGM : Purchase	AVP/ AGM : Corporate Affairs / Legal
Middle Management	7	Sr. Manager - Accounts	Sr. Manager - Taxation	Sr. Manager - Finance	Sr. Manager - HR	Manager - Training	Sr. Manager - Purchase	Sr. Manager - Corporate Affairs / Legal
		Manager - Accounts	Manager - Taxation	Manager - Finance	Manager - HR	Master Trainer	Manager - Purchase	Manager - Corporate Affairs / Legal
		Manager - Accounts	Asttn. Manager Taxation	Asttn. Manager Finance	Asttn. Manager HR	Sr. Trainer	Asttn. Manager Purchase	Asttn. Manager Corporate Affairs / Legal
		Asttn. Manager Accounts	Jr. Manager Taxation	Jr. Manager Finance	Jr. Manager HR		Jr. Manager Purchase	Senior Legal Associate
	6	Jr. Manager Accounts	Sr. Taxation Associate	Sr. Finance Associate	Sr. HR Associate	Trainer	Sr. Purchase Officer	Legal Associate



Occupations	>>	Finance & Accounts			Human Resource		Procure-ment	Corporate Affairs & Legal
Tracks	NSQF LEVEL	Audit and Accounting	Taxation	Finance (includes Budgeting & Forecasting)	Recruitment & Compensation	Learning and Development	Purchase	Corporate Affairs & Legal
Execution	5	Sr. Accounts Associate	Taxation Associate	Finance Associate	HR Associate	Jr Trainer	Purchae Officer	Assistant Legal Associate
	4	Accounts Associate	Taxation Associate	Finance Associate	HR Associate		Purchae Assistant	
	3	Accounts Trainee	Taxation Trainee	Finance Trainee	HR Trainee			

19. Job Roles in Surveillance Sub-sector for SI

Major Roles Related to System Integrators/ Contractors in the Surveillance segment

Listed below are roles which comprise key skills related to System Integrators and Contractors in the Surveillance segment. Other roles relating to higher management and supporting functions such as finance, administration, purchase, HR and corporate affairs are not included - although these are identified in the OM. The job role identification is based on industry interaction, feedback and data received from various emails, visits and questionnaires.

Job Roles in general have Junior, Assistant, Senior classifications which convey their depth of knowledge and skills in the occupation. These have not been expanded in the following list, in the interest of clarity.

QPs have been defined for the highlighted Job Roles and presented in this QRC.

A. Presales/Sales & Marketing (6)

1. Presales Technician
2. Presales Engineer
3. Site Visit supervisor
4. Site visit Technician
5. Project Co coordinator
6. Online support Technician

B. Installation and Commissioning (27):

1. Installation & Commissioning Technician (CCTV & Recorders)
2. Installation & Commissioning Technician (Intrusion alarms)
3. Installation & Commissioning Technician (Video Door Phone)
4. Installation & Commissioning Technician(Wireless devices)
5. Installation & Commissioning Technician(Biometric devices)
6. Installation & Commissioning Technician (Fire Alarm Devices)
7. Installation & Commissioning Technician(Mobile DVR)
8. Installation & Commissioning Technician (Perimeter Security)
9. Installation & Commissioning Technician (Electronic lockers)
10. Command & Control Management System Specialist
11. Data Specialist - Command & Control Management
12. Face Recognition system Specialist
13. Installation & Commissioning Technician (Audio system)
14. Programmer ID CARD/Badge
15. Installation & Commissioning Technician (ID Card, Badge Reader)
16. Installation & Commissioning Technician (Time & attendance System solutions)
17. Installation & Commissioning Technician (Metal Detectors)
18. Installation & Commissioning Technician(X Ray Detectors)
19. Site Supervisor (Electronically Controlled Access gates/systems)
20. Installation & Commissioning Technician (Electronically Controlled Access gates/systems)
21. High Security Vehicles Operator
22. Bulletproof Solutions Specialist
23. CCTV Installation & Commissioning Supervisor
24. Installation & Commissioning Technician-Advanced Surveillance Equipment

25. Installation & Commissioning Supervisor (Multiskill)
26. Installation & Commissioning Engineer(Multiskill)
27. Installation & Commissioning Technician (Building Automation Control Panel)

C. Repair & Maintenance, Troubleshooting (34):

1. Repair technician (CCTV & Recorders)
2. CCTV & Recorders Troubleshooter
3. Repair technician (Intrusion alarms)
4. Intrusion Alarms Troubleshooter
5. Repair technician (Video Door Phones)
6. Video Door Phones Troubleshooter
7. Repair technician (Wireless devices)
8. Wireless devices Troubleshooter
9. Repair technician (Biometric devices)
10. Biometric devices Troubleshooter
11. Repair technician (Biometric devices)
12. Biometric devices Troubleshooter
13. Repair technician (Mobile DVR)
14. Mobile DVR Troubleshooter
15. Repair & maintenance technician (Perimeter Security)
16. Traffic Solution System Specialist/ Troubleshooter
17. Repair & Maintenance Technician(Electronic lockers)
18. Face Recognition Specialist/ Troubleshooter
19. Repair & Maintenance Technician /Engineer (Face Recognition System)
20. Repair & Maintenance Technician (ID Card/Badge Reader)
21. ID Card, Badge Reader Troubleshooter
22. Repair & Maintenance Technician (Time & attendance System solutions)
23. Time & Attendance System solutions Troubleshooter
24. Repair & Maintenance(Metal Detectors)
25. Repair Maintenance (X Ray Detectors)
26. High Security Vehicles Operator Troubleshooter
27. Repair Technician Surveillance (Multiskill)
28. Manager - Support & Repair
29. Asstt Manager Support & Repair
30. Engineer - Support & Repair
31. Supervisor - R&M
32. Sr Technician - R&M
33. Technician - R&M
34. Jr / Asstt Technician - R&M

D. Wiring, Cabling, Assembly & Testing (Field systems): ()

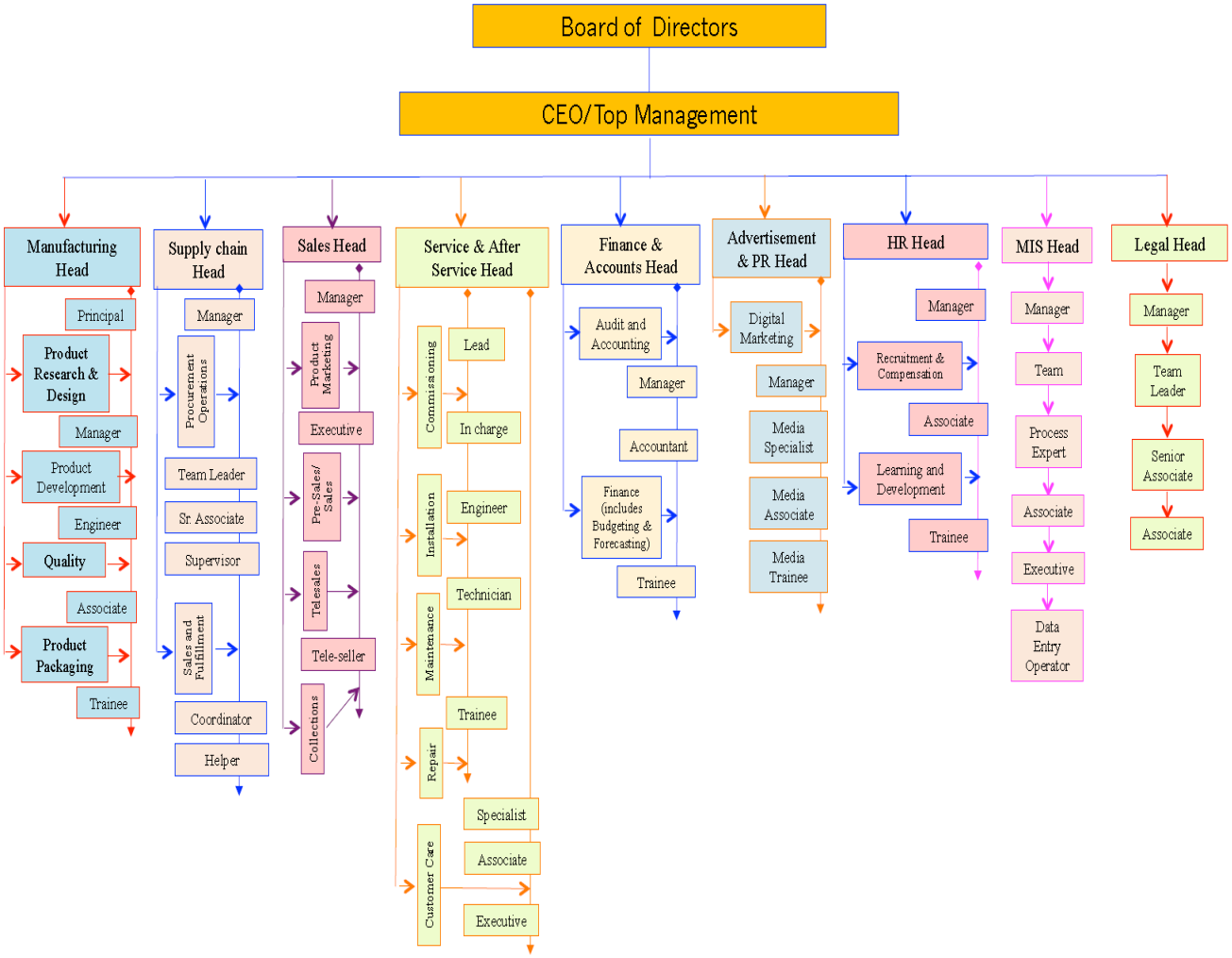
1. Technician - Power Cabling
2. Technician - Fire Alarm Cabling
3. Technician - Data Cabling
4. Technician - Video/CCTV Cabling
5. Technician - Intercom Cabling
6. Technician - Structured Cabling
7. Technician - Cabling (multi skill)
8. Technician (Building automation - multi skill)

9. Supervisor (Building automation)

BACK

20. Occupational Map - Surveillance Sub-sector for End User

Model Organizational structure (for large companies)



BACK

Occupa-tions >>	NSQF LEVEL	R&D	Production & Maintenance			Testing & Quality Assurance		Stores/ Material Management/ Inventory Control	Product Packaging & Dispatches	Corporate Affairs & Legal
Management	8,9	Chief Executive Officer / Managing Director/ President								
	8	Director/VP/GM/ Chief Scientist / Chief Engineer Products & Process R&D	Director/VP/ GM- Production/ Process/ Line	Director/VP/ GM- Maintenance		Director/VP/ GM Testing & quality Assurance		Director/VP/ GM: MM/ Stores		Director/ President : Corporate Affairs/ Legal
	8	Product Managers / Distinguished Engineer, Principal Engineer, Process & Technology Expert/ Principal Scientist	AGM Production/ Process/ Line	AVP/ AGM - Automation	AVP/AGM - Instrumnetation	AVP/AGM - Testing & Calibration	AVP/AGM - Quality Assurance	AVP/ AGM Material Management/ Stores	AVP/AGM Packaging / Dispatches	VP/ GM : Corporate Affairs / Legal
Middle Level	7	Team Leader/ Senior Engineer/ Sr Process Specialist/ Senior Scientist / Sr Product Designer / Product Specialist/Lab Manager	Sr. Manager Production/ Process/ Line	Sr. Manager - Automation	Sr. Manager - Instrumentation	Sr Manager: Testing & Calibration	Sr Manager: Quality/ Process Assurance	Sr. Manager: MM/ Stores	Sr Manager Packaging/ Dispatches	AVP/ AGM : Corporate Affairs / Legal
	7	Supervisor/ Senior Engineer/ Process Specialist/ Prodct Specialist/ Product Designer/ Scientist/ Product Testing/ Lab Incharge	Production/ Line/ Process Incharge	Manager - Automation	Manager Instrumentation	Manager: Testing & Calibration	Manager: Quality/ Process Assurance	Manager: MM/ Stores	Manager Packaging/ Dispatches	Sr. Manager - Corporate Affairs / Legal
	7	Sr Scientist / Process Engineer / Asst. Product Designer/ Sr Lab Assistant	Shift Incharge	Sr. Automation Engineer / Assitant Manager - Automation	Sr Instrumentation Engineer/ Assitant Manager - Instrumentation	Sr. Engineer Testing / Calibration/ Asst. Manager: Testing & Calibration	Sr. Engineer quality/ Process Assurance/ Asttn. Manager: Quality/ Process Assurance	Asttn. Manager: MM/ Stores	Asttn. Manager Packaging/ Dispatches	Manager - Corporate Affairs / Legal
	6	Engineer/ Scientist /Sr Lab Assistant	Shift Supervisor	Automation Engineer	Instrumentation Engineer	Engineer Testing / Calibration	Engineer quality/ Process Assurance	Supervisor: MM/ Stores	Packaging Supervisor	Asttn. Manager Corporate Affairs / Legal
Entry Level	5	Junior Scientist/ Trainee Engineer/ Lab Assistant	Sr. Operator Production/ Line/ Process	Jr / Asstt/ Trainee Engineer - Automation	Jr / Asstt/ Trainee Engineer - Instrumentation	Jr / Asstt/ Trainee Engineer - Calibration	Jr / Asstt/ Trainee Engineer - Quality/ Process Assurance	SrStores Assistant	Sr Packaging Assistant	Senior Legal Associate
	5		Operator Production/ Line/ Process	Sr Technician - Automation	Sr Technician - Instrumentation	Sr Technician - Testing / Calibration	Sr Technician - Quality/ Process Assurance			
	4		Jr. Operator Production/ Line/ Process	Technician - Automation	Technician - Instrumentation	Technician - Testing / Calibration	Technician - Quality/ Process Assurance	Stores Assistant	Packaging Assistant	Legal Associate
	3		Operator Helper	Technician, Assistant - Automation	Technician, Assistant - Instrumentation	Technician, Assistant - Testing / Calibration	QA Helper	Stores Helper	Jr Packaging Assistant	Assistant Legal Associate

A

B

Heat Map (Occupation Map - Surveillance for End User Industry)

Legends:	< 3%	< 5%	15%	25%	> 50%

Occupa-tions >>	NSQF LEVEL	R&D	Production & Maintenance		Testing & Quality Assurance		Stores/ Material Management/ Inventory Control	Product Packaging & Dispatches	Corporate Affairs & Legal
Management	8,9	Chief Executive Officer / Managing Director/ President							
	8	Director/VP/GM/ Chief Engineer - R&D	Director/VP/ GM - Production	Director/ VP/ GM- Maintenance		Director/VP/ GM Testing & Quality Assurance		Director/VP/ GM - MM/ Stores	Director/ President - Corporate Affairs/ Legal
	8	Product Manager / Principal Engineer	AGM Production	AVP/ AGM - Automation	AVP/AGM - Instrumnetation	AVP/AGM - Testing & Calibration	AVP/AGM - Quality Assurance	AVP/ AGM Material Management/ Stores	AVP/AGM Packaging / Dispatches	VP/ GM : Corporate Affairs / Legal
Middle Level	7	Team Leader/ Senior Engineer/ Sr Process Specialist/ Senior Scientist / Sr Product Designer / Product Specialist/Lab Manager	Sr. Manager Production	Sr. Manager - Automation	Sr. Manager - Instrumentation	Sr Manager: Testing & Calibration	Sr Manager: Quality/ Process Assurance	Sr. Manager: MM/ Stores	Sr Manager Packaging/ Dispatches	AVP/ AGM : Corporate Affairs / Legal
	7	Supervisor/ Senior Engineer/ Process Specialist/ Prodct Specialist/ Product Designer/ Scientist/ Product Testing/ Lab Incharge	Production Engineer / Incharge	Manager - Automation	Manager - Instrumentation	Manager: Testing & Calibration	Manager: Quality/ Process Assurance	Manager: MM/ Stores	Manager Packaging/ Dispatches	Sr. Manager - Corporate Affairs / Legal
	7	Sr Scientist / Process Engineer / Asst. Product Designer/ Sr Lab Assistant	Shift Incharge	Sr. Automation Engineer / Assitant Manager - Automation	Sr Instrumentation Engineer/ Assitant Manager - Instrumentation	Sr. Engineer Testing / Calibration/ Asst. Manager: Testing & Calibration	Sr. Engineer quality/ Process Assurance/ Asttn. Manager: Quality/ Process Assurance	Asttn. Manager: MM/ Stores	Asttn. Manager Packaging/ Dispatches	Manager - Corporate Affairs / Legal
	6	Engineer/ Scientist /Sr Lab Assistant	Shift Supervisor	Automation Engineer	Instrumentation Engineer	Engineer Testing / Calibration	Engineer quality/ Process Assurance	Supervisor: MM/ Stores	Packaging Supervisor	Asttn. Manager Corporate Affairs / Legal
Entry Level	5	Junior Scientist/ Trainee Engineer/ Lab Assistant	Sr. Operator Production/ Line/ Process	Jr / Asstt/ Trainee Engineer - Automation	Jr / Asstt/ Trainee Engineer - Instrumentation	Jr / Asstt/ Trainee Engineer - Calibration	Jr / Asstt/ Trainee Engineer - Quality/ Process Assurance	SrStores Assistant	Sr Packaging Assistant	Senior Legal Associate
	5		Operator Production/ Line/ Process	Sr Technician - Automation	Sr Technician - Instrumentation	Sr Technician - Testing / Calibration	Sr Technician - Quality/ Process Assurance			
	4		Jr. Operator Production Line	Automation Technician	Instrumentation Technician	Technician testing / calibration	Technician Quality/ Process Assurance	Stores Assistant	Packaging Assistant	Legal Associate
	3		Operator Helper	Automation Technician Assistant	Instrumentation Technician Assistant	Technician Assistant testing / calibration	QA Helper	Stores Helper	Jr Packaging Assistant	Assistant Legal Associate

Occupa-tions >>	NSQF LEVEL	R&D	Production & Maintenance		Testing & Quality Assurance		Stores/ Material Management/ Inventory Control	Product Packaging & Dispatches	Corporate Affairs & Legal
Management	8,9	Chief Executive Officer / Managing Director/ President							
	8	Director/VP/GM/ Chief Scientist / Chief Engineer Products & Process R&D	Director/VP/ GM-Production/ Process/ Line	Director/VP/ GM- Maintenance		Director/VP/ GM Testing & quality Assurance		Director/VP/ GM: MM/ Stores	Director/ President : Corporate Affairs/ Legal
	8	Product Managers / Distinguished Engineer, Principal Engineer, Process & Technology Expert/ Principal Scientist	AGM Production/ Process/ Line	AVP/ AGM - Automation	AVP/AGM - Instrumnetation	AVP/AGM - Testing & Calibration	AVP/AGM - Quality Assurance	AVP/ AGM Material Management/ Stores	AVP/AGM Packaging / Dispatches	VP/ GM : Corporate Affairs / Legal
Middle Level	7	Team Leader/ Senior Engineer/ Sr Process Specialist/ Senior Scientist / Sr Product Designer / Product Specialist/Lab Manager	Sr. Manager Production/ Process/ Line	Sr. Manager - Automation	Sr. Manager - Instrumentation	Sr Manager: Testing & Calibration	Sr Manager: Quality/ Process Assurance	Sr. Manager: MM/ Stores	Sr Manager Packaging/ Dispatches	AVP/ AGM : Corporate Affairs / Legal
		Supervisor/ Senior Engineer/ Process Specialist/ Prodct Specialist/ Product Designer/ Scientist/ Product Testing/ Lab Incharge	Production/ Line/ Process Incharge	Manager - Automation	Manager - Instrumentation	Manager: Testing & Calibration	Manager: Quality/ Process Assurance	Manager: MM/ Stores	Manager Packaging/ Dispatches	Sr. Manager - Corporate Affairs / Legal
		Sr Scientist / Process Engineer / Asst. Product Designer/ Sr Lab Assistant	Shift Incharge	Sr. Automation Engineer / Assitant Manager - Automation	Sr Instrumentation Engineer/ Assitant Manager - Instrumentation	Sr. Engineer Testing / Calibration/ Asst. Manager: Testing & Calibration	Sr. Engineer quality/ Process Assurance/ Asttn. Manager: Quality/ Process Assurance	Asttn. Manager: MM/ Stores	Asttn. Manager Packaging/ Dispatches	Manager - Corporate Affairs / Legal
	6	Engineer/ Scientist /Sr Lab Assistant	Shift Supervisor	Automation Engineer	Instrumentation Engineer	Engineer Testing / Calibration	Engineer quality/ Process Assurance	Supervisor: MM/ Stores	Packaging Supervisor	Asttn. Manager Corporate Affairs / Legal

Occupa-tions >>	NSQF LEVEL	R&D	Production & Maintenance	B	Testing & Quality Assurance	Stores/ Material Management/ Inventory Control	Product Packaging & Dispatches	Corporate Affairs & Legal
Entry Level	5	Junior Scientist/ Trainee Engineer/ Lab Assistant	Sr. Operator Production/ Line/ Process	Jr / Asstt/ Trainee Engineer - Automation	Jr / Asstt/ Trainee Engineer - Instrumentation	Jr / Asstt/ Trainee Engineer - Calibration	Jr / Asstt/ Trainee Engineer - Quality/ Process Assurance	SrStores Assistant	Sr Packaging Assistant	Senior Legal Associate
			Operator Production/ Line/ Process	Sr Technician - Automation	Sr Technician - Instrumentation	Sr Technician - Testing / Calibration	Sr Technician - Quality/ Process Assurance			
	4		Jr. Operator Production/ Line/ Process	Technician - Automation	Technician - Instrumentation	Technician - Testing / Calibration	Technician - Quality/ Process Assurance	Stores Assistant	Packaging Assistant	Legal Associate
	3		Operator Helper	Technician, Assistant - Automation	Technician, Assistant - Instrumentation	Technician, Assistant - Testing / Calibration	QA Helper	Stores Helper	Jr Packaging Assistant	Assistant Legal Associate

21. Job Roles in Surveillance Sub-sector for End User

Major Roles Related to End Users in the Surveillance segment

It may be noted that the end users of Surveillance systems are the end user industry - whether directly or through Contractors in Surveillance sub-sector. Listed below are roles which comprise key skills related to End Users in the Surveillance segment. Other roles relating to higher management and supporting functions such as finance, administration, purchase, HR and corporate affairs are not included - although these are identified in the OM. The job role identification is based on industry interaction, feedback and data received from various emails, visits and questionnaires.

Job Roles in general have Junior, Assistant, Senior classifications which convey their depth of knowledge and skills in the occupation. These have not been expanded in the following list, in the interest of clarity.

QPs have been defined for the highlighted Job Roles and presented in this QRC.

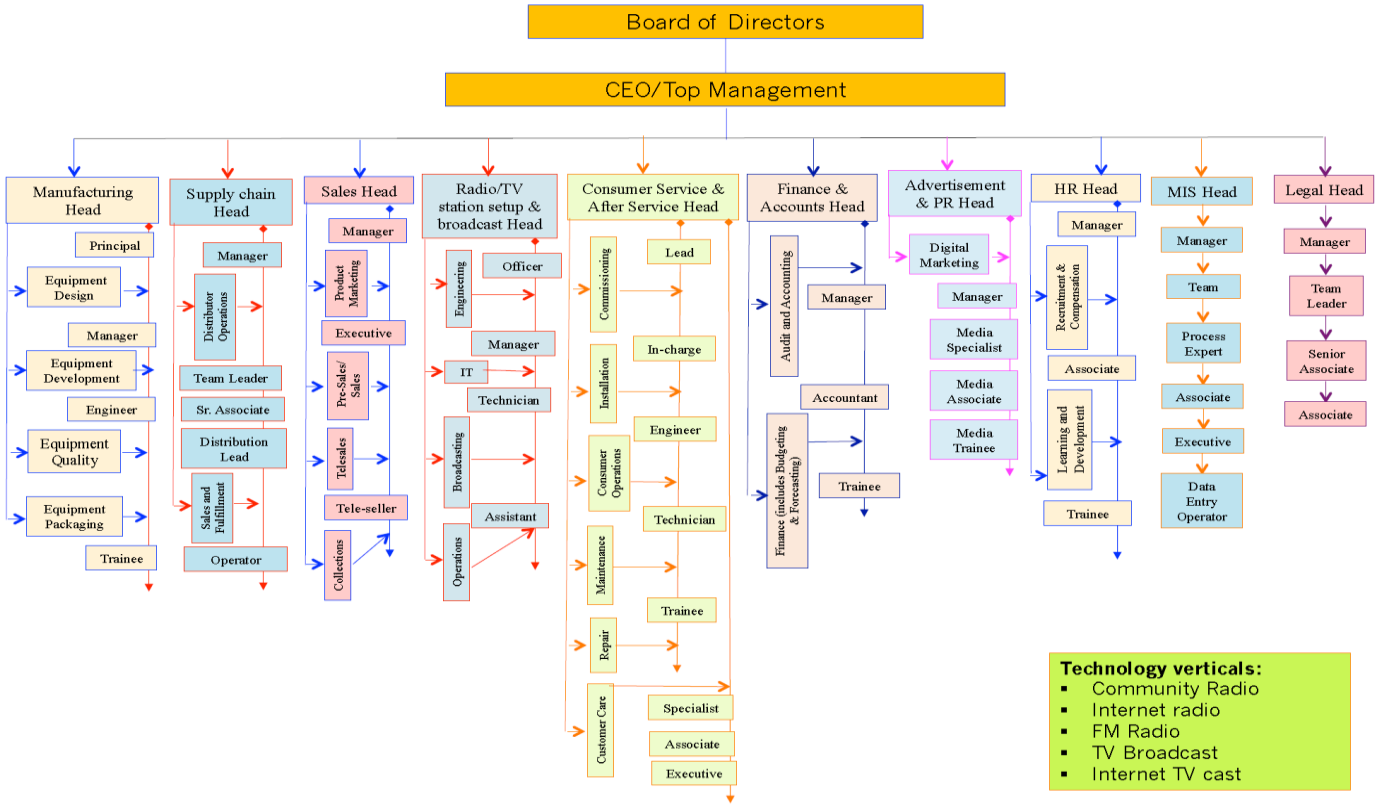
A. Plant / Facility Operation & Maintenance (14):

1. Technician Facility Operation - (multi skill)
2. Operator (Fire Alarm Control Panel)
3. Supervisor - Facility Operation & Maintenance
4. Engineer - Facility Operation & Maintenance
5. Technician - Plant Operation & Maintenance
6. Supervisor - Plant Operation & Maintenance
7. Engineer - Plant Operation & Maintenance
8. Operator (Multiskill)
9. Operator(CCTV & Recorders)
10. Supervisor(CCTV & Recorders)
11. Supervisor (Intrusion alarms)
12. Supervisor (Video Door Phones)
13. Operator (Wireless Devices)
14. Supervisor (Fire alarm systems)

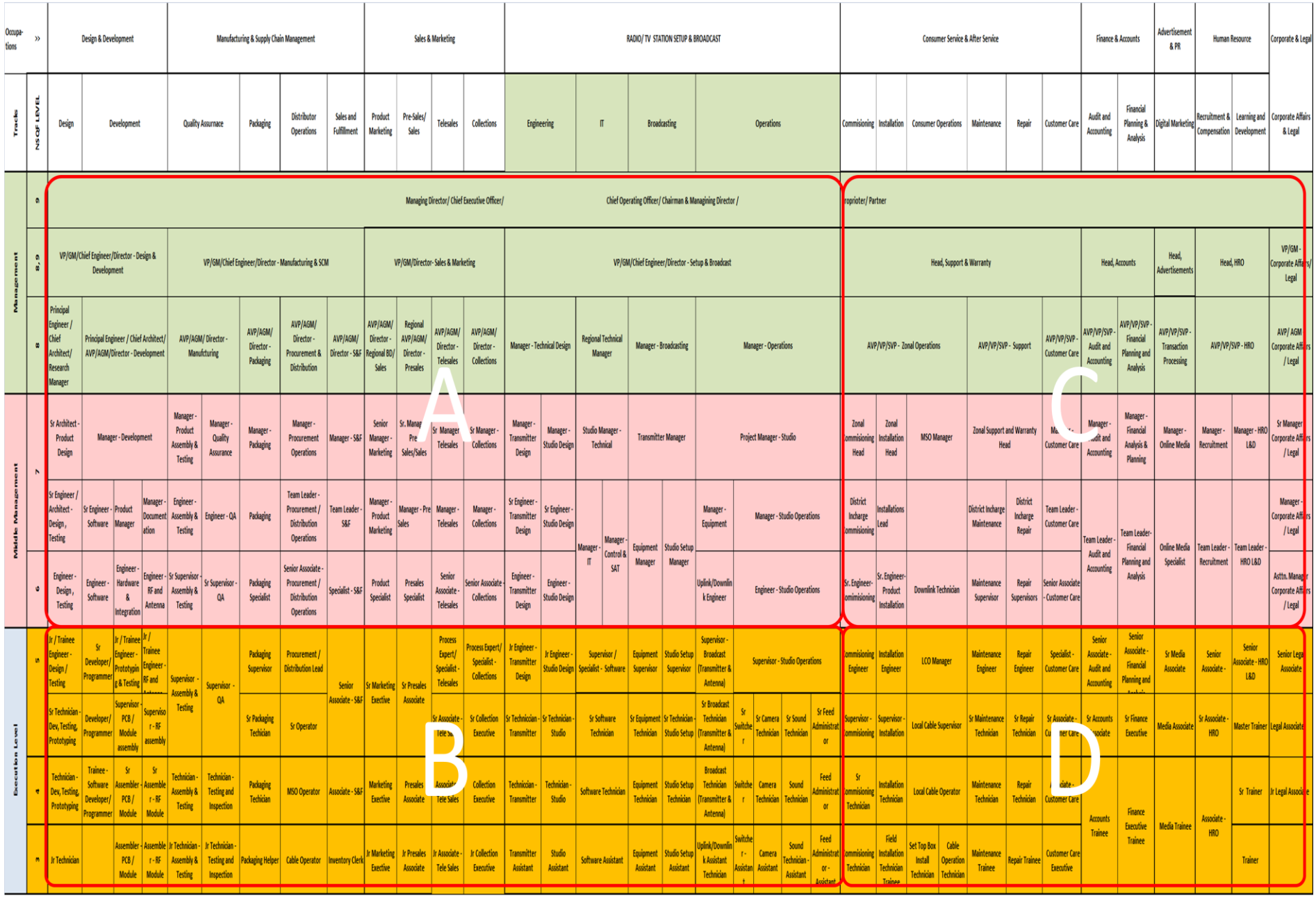
BACK

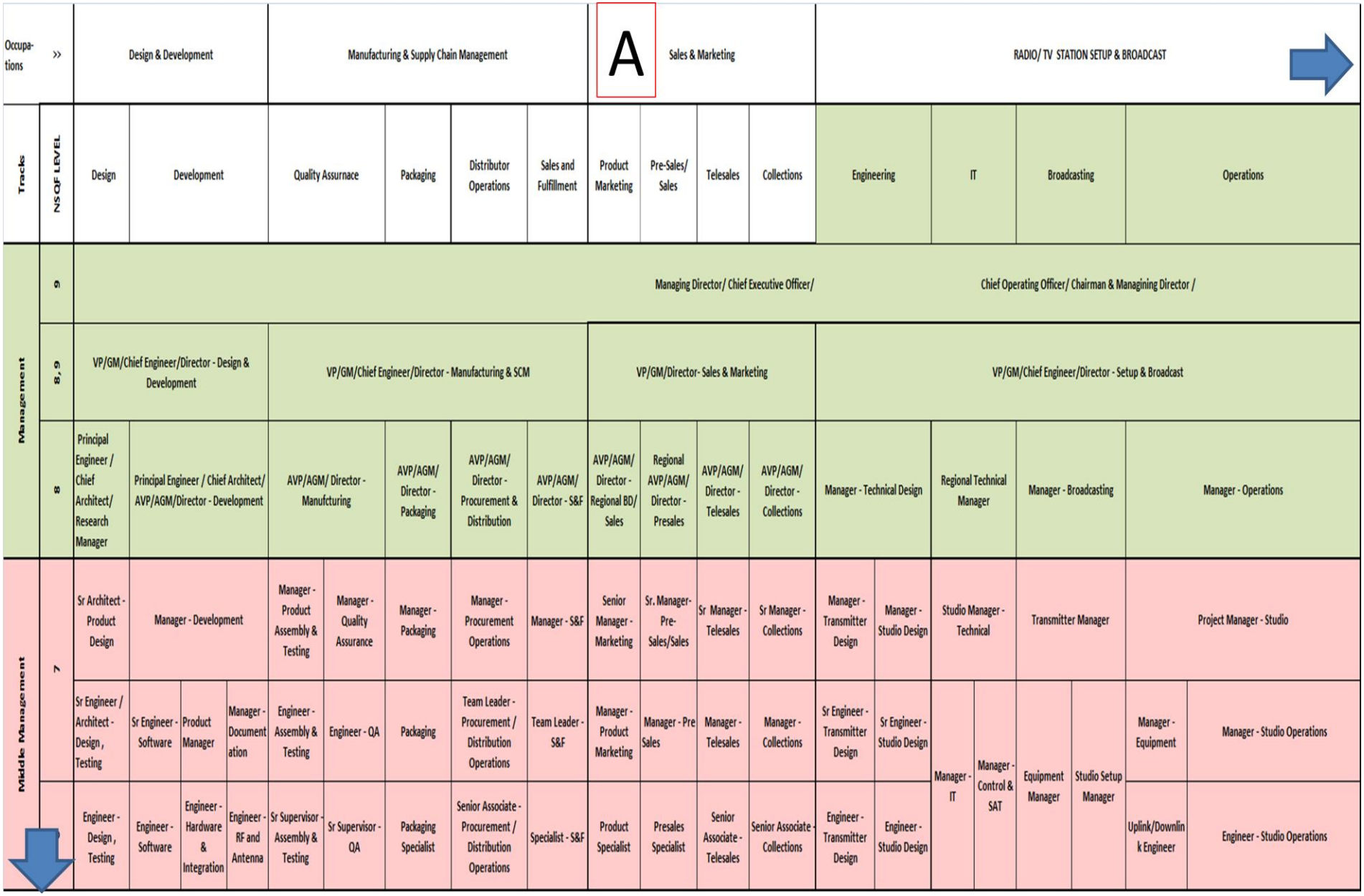
22. Occupational Map - Communication Sub-sector

Model Organizational structure (for large companies)



BACK


Occupations
Design & Development
Manufacturing & Supply Chain Management
Sales & Marketing
RADIO/ TV STATION SETUP & BROADCAST
Consumer Service & After Service
Finance & Accounts
Advertisement & PR
Human Resource
Corporate & Legal
Tracks
NSQF LEVEL
Design
Development
Quality Assurnace
Packaging
Distributor Operations
Sales and Fulfillment
Product Marketing
Pre-Sales/ Sales
Telesales
Collections
Engineering
IT
Broadcasting
Operations
Commisioning
Installation
Consumer Operations
Maintenance
Repair
Customer Care
Audit and Accounting
Financial Planning & Analysis
Digital Marketing
Recruitment & Compensation
Learning and Development
Corporate Affairs & Legal
Management
Middle Management
Execution Level
9
8,9
8
7
6
5
4
3
Managing Director/ Chief Executive Officer/
Chief Operating Officer/ Chairman & Managing Director /
roprioter/ Partner
VP/GM/Chief Engineer/Director - Design & Development
VP/GM/Chief Engineer/Director - Manufacturing & SCM
VP/GM/Director- Sales & Marketing
VP/GM/Chief Engineer/Director - Setup & Broadcast
Head, Support & Warranty
Head, Accounts
Head, Advertisements
Head, HRO
VP/GM - Corporate Affairs/ Legal
Principal Engineer / Chief Architect/ Research Manager
Principal Engineer / Chief Architect/ AVP/AGM/Director - Development
AVP/AGM/ Director - Manufcturing
AVP/AGM/ Director - Packaging
AVP/AGM/ Director - Procurement & Distribution
AVP/AGM/ Director - S&F
AVP/AGM/ Director - Regional BD/ Sales
Regional AVP/AGM/ Director - Presales
AVP/AGM/ Director - Telesales
AVP/AGM/ Director - Collections
Manager - Technical Design
Regional Technical Manager
Manager - Broadcasting
Manager - Operations
AVP/VP/SVP - Zonal Operations
AVP/VP/SVP - Support
AVP/VP/SVP - Customer Care
AVP/VP/SVP - Audit and Accounting
AVP/VP/SVP - Financial Planning and Analysis
AVP/VP/SVP - Transaction Processing
AVP/VP/SVP - HRO
AVP/ AGM Corporate Affairs / Legal
Sr Architect - Product Design
Manager - Development
Manager - Product Assembly & Testing
Manager - Quality Assurance
Manager - Packaging
Manager - Procurement Operations
Manager - S&F
Senior Manager - Marketing
Sr. Manager - Pre Sales/Sales
Sr Manager - Telesales
Sr Manager - Collections
Manager - Transmitter Design
Manager - Studio Design
Studio Manager - Technical
Transmitter Manager
Project Manager - Studio
Zonal Commisioning Head
Zonal Installation Head
MSO Manager
Zonal Support and Warranty Head
Manager - Customer Care
Manager - Audit and Accounting
Manager - Financial Analysis & Planning
Manager - Online Media
Manager - Recruitment
Manager - HRO L&D
Sr Manager Corporate Affairs / Legal
Sr Engineer / Architect - Design, Testing
Sr Engineer - Software
Product Manager
Manager - Documentation
Engineer - Assembly & Testing
Engineer - QA
Packaging
Team Leader - Procurement / Distribution Operations
Team Leader - S&F
Manager - Product Marketing
Manager - Pre Sales
Manager - Telesales
Manager - Collections
Sr Engineer - Transmitter Design
Sr Engineer - Studio Design
Manager - IT
Manager - Control & SAT
Equipment Manager
Studio Setup Manager
Manager - Equipment
Manager - Studio Operations
District Incharge Commisioning
Installations Lead
District Incharge Maintenance
District Incharge Repair
Team Leader - Customer Care
Team Leader - Audit and Accounting
Team Leader- Financial Planning and Analysis
Online Media Specialist
Team Leader - Recruitment
Team Leader - HRO L&D
Manager - Corporate Affairs / Legal
Engineer - Design, Testing
Engineer - Software
Engineer - Hardware & Integration
Engineer - RF and Antenna
Sr Supervisor - Assembly & Testing
Sr Supervisor - QA
Packaging Specialist
Senior Associate - Procurement / Distribution Operations
Specialist - S&F
Product Specialist
Presales Specialist
Senior Associate - Telesales
Senior Associate - Collections
Engineer - Transmitter Design
Engineer - Studio Design
Uplink/Downlink Engineer
Engineer - Studio Operations
Sr. Engineer- Commisioning
Sr. Engineer- Product Installation
Downlink Technician
Maintenance Supervisor
Repair Supervisors
Senior Associate - Customer Care
Asstn. Manager Corporate Affairs / Legal
Jr / Trainee Engineer - Design / Testing
Sr Developer/ Programmer
Jr / Trainee Engineer - Prototyping & Testing
Jr / Trainee Engineer - RF and
Supervisor - Assembly & Testing
Supervisor - QA
Packaging Supervisor
Procurement / Distribution Lead
Senior Associate - S&F
Sr Marketing Exective
Sr Presales Associate
Process Expert/ Specialist - Telesales
Process Expert/ Specialist - Collections
Jr Engineer - Transmitter Design
Jr Engineer - Studio Design
Supervisor / Specialist - Software
Equipment Supervisor
Studio Setup Supervisor
Supervisor - Broadcast (Transmitter & Antenna)
Supervisor - Studio Operations
Commisioning Engineer
Installation Engineer
LCO Manager
Maintenance Engineer
Repair Engineer
Specialist - Customer Care
Senior Associate - Audit and Accounting
Senior Associate - Financial Planning and
Sr Media Associate
Senior Associate -
Senior Associate - HRO L&D
Senior Legal Associate
Sr Technician - Dev, Testing, Prototyping
Developer/ Programmer
Supervisor - PCB / Module assembly
Supervisor - RF assembly
Sr Packaging Techician
Sr Operator
Sr Associate - Tele Sales
Sr Collection Executive
Sr Technician - Transmitter
Sr Technician - Studio
Sr Software Technician
Sr Equipment Technician
Sr Technician - Studio Setup
Sr Broadcast Technician (Transmitter & Antenna)
Sr Switcher
Sr Camera Technician
Sr Sound Technician
Sr Feed Administrator
Supervisor - Commisioning
Supervisor - Installation
Local Cable Supervisor
Sr Maintenance Technician
Sr Repair Technician
Sr Associate - Customer Care
Sr Accounts Associate
Sr Finance Executive
Media Associate
Sr Associate - HRO
Master Trainer
Legal Associate
Technician - Dev, Testing, Prototyping
Trainee - Software Developer/ Programmer
Sr Assembler - PCB / Module
Sr Assembler - RF Module
Technician - Assembly & Testing
Technician - Testing and Inspection
Packaging Techician
MSO Operator
Associate - S&F
Marketing Exective
Presales Associate
Associate - Tele Sales
Collection Executive
Technician - Transmitter
Technician - Studio
Software Technician
Equipment Technician
Studio Setup Technician
Broadcast Technician (Transmitter & Antenna)
Switcher
Camera Technician
Sound Technician
Feed Administrator
Sr Commisioning Technician
Installation Technician
Local Cable Operator
Maintenance Technician
Repair Technician
Associate - Customer Care
Accounts Trainee
Finance Executive Trainee
Media Trainee
Associate - HRO
Sr Trainer
Jr Legal Associate
Jr Technician
Assembler - PCB / Module
Assembler - RF Module
Jr Technician - Assembly & Testing
Jr Technician - Testing and Inspection
Packaging Helper
Cable Operator
Inventory Clerk
Jr Marketing Exective
Jr Presales Associate
Jr Associate - Tele Sales
Jr Collection Executive
Transmitter Assistant
Studio Assistant
Software Assistant
Equipment Assistant
Studio Setup Assistant
Uplink/Downlink Assistant Technician
Switcher - Assistant
Camera Assistant
Sound Technician - Assistant
Feed Administrator - Assistant
Commisioning Technician
Field Installation Technician Trainee
Set Top Box Install Technician
Cable Operation Technician
Maintenance Trainee
Repair Trainee
Customer Care Executive
Trainer
A
B
C
D


Occupa-tions
Design & Development
Manufacturing & Supply Chain Management
A
Sales & Marketing
RADIO/ TV STATION SETUP & BROADCAST
Tracks
NSQF LEVEL
Design
Development
Quality Assurnace
Packaging
Distributor Operations
Sales and Fulfillment
Product Marketing
Pre-Sales/ Sales
Telesales
Collections
Engineering
IT
Broadcasting
Operations
Management
9
Managing Director/ Chief Executive Officer/
Chief Operating Officer/ Chairman & Managining Director /
8, 9
VP/GM/Chief Engineer/Director - Design & Development
VP/GM/Chief Engineer/Director - Manufacturing & SCM
VP/GM/Director- Sales & Marketing
VP/GM/Chief Engineer/Director - Setup & Broadcast
8
Principal Engineer / Chief Architect/ Research Manager
Principal Engineer / Chief Architect/ AVP/AGM/Director - Development
AVP/AGM/ Director - Manufcturing
AVP/AGM/ Director - Packaging
AVP/AGM/ Director - Procurement & Distribution
AVP/AGM/ Director - S&F
AVP/AGM/ Director - Regional BD/ Sales
Regional AVP/AGM/ Director - Presales
AVP/AGM/ Director - Telesales
AVP/AGM/ Director - Collections
Manager - Technical Design
Regional Technical Manager
Manager - Broadcasting
Manager - Operations
Middle Management
7
Sr Architect - Product Design
Manager - Development
Manager - Product Assembly & Testing
Manager - Quality Assurance
Manager - Packaging
Manager - Procurement Operations
Manager - S&F
Senior Manager - Marketing
Sr. Manager- Pre-Sales/Sales
Sr Manager - Telesales
Sr Manager - Collections
Manager - Transmitter Design
Manager - Studio Design
Studio Manager - Technical
Transmitter Manager
Project Manager - Studio
Sr Engineer / Architect - Design , Testing
Sr Engineer - Software
Product Manager
Manager - Documentation
Engineer - Assembly & Testing
Engineer - QA
Packaging
Team Leader - Procurement / Distribution Operations
Team Leader - S&F
Manager - Product Marketing
Manager - Pre Sales
Manager - Telesales
Manager - Collections
Sr Engineer - Transmitter Design
Sr Engineer - Studio Design
Manager - IT
Manager - Control & SAT
Equipment Manager
Studio Setup Manager
Manager - Equipment
Manager - Studio Operations
Engineer - Design , Testing
Engineer - Software
Engineer - Hardware & Integration
Engineer - RF and Antenna
Sr Supervisor - Assembly & Testing
Sr Supervisor - QA
Packaging Specialist
Senior Associate - Procurement / Distribution Operations
Specialist - S&F
Product Specialist
Presales Specialist
Senior Associate - Telesales
Senior Associate - Collections
Engineer - Transmitter Design
Engineer - Studio Design
Uplink/Downlink Engineer
Engineer - Studio Operations

B

Occupa-tions	>>	Design & Development		Manufacturing & Supply Chain Management				Sales & Marketing				RADIO/ TV STATION SETUP & BROADCAST			
Tracks	NSQF LEVEL	Design	Development	Quality Assurnace	Packaging	Distributor Operations	Sales and Fulfillment	Product Marketing	Pre-Sales/ Sales	Telesales	Collections	Engineering	IT	Broadcasting	Operations
Execution Level	5	Jr / Trainee Engineer - Design / Testing	Sr Developer/ Programmer	Jr / Trainee Engineer - Prototyping & Testing	Jr / Trainee Engineer - RF and	Supervisor - Assembly & Testing	Supervisor - QA	Packaging Supervisor	Procurement / Distribution Lead	Senior Associate - S&F	Sr Marketing Exective	Sr Presales Associate	Process Expert/ Specialist - Telesales	Process Expert/ Specialist - Collections	Jr Engineer - Transmitter Design	Jr Engineer - Studio Design	Supervisor / Specialist - Software	Equipment Supervisor	Studio Setup Supervisor	Supervisor - Broadcast (Transmitter & Antenna)	Supervisor - Studio
		Sr Technician - Dev, Testing, Prototyping	Developer/ Programmer	Supervisor - PCB / Module assembly	Supervisor - RF assembly			Sr Packaging Techician	Sr Operator				Sr Associate - Tele Sales	Sr Collection Executive	Sr Technician - Transmitter	Sr Technician - Studio	Sr Software Technician	Sr Equipment Technician	Sr Technician - Studio Setup	Sr Broadcast Technician (Transmitter & Antenna)	Sr Switcher	Sr Camera Technician	Sr Sound Technician	Sr Feed Administrator
	4	Technician - Dev, Testing, Prototyping	Trainee - Software Developer/ Programmer	Sr Assembler - PCB / Module	Sr Assembler - RF Module	Technician - Assembly & Testing	Technician - Testing and Inspection	Packaging Techician	MSO Operator	Associate - S&F	Marketing Exective	Presales Associate	Associate - Tele Sales	Collection Executive	Technician - Transmitter	Technician - Studio	Software Technician	Equipment Technician	Studio Setup Technician	Broadcast Technician (Transmitter & Antenna)	Switcher	Camera Technician	Sound Technician	Feed Administrator
	3	Jr Technician		Assembler - PCB / Module	Assembler - RF Module	Jr Technician - Assembly & Testing	Jr Technician - Testing and Inspection	Packaging Helper	Cable Operator	Inventory Clerk	Jr Marketing Exective	Jr Presales Associate	Jr Associate - Tele Sales	Jr Collection Executive	Transmitter Assistant	Studio Assistant	Software Assistant	Equipment Assistant	Studio Setup Assistant	Uplink/Downlink Assistant Technician	Switcher - Assistant	Camera Assistant	Sound Technician - Assistant	Feed Administrator - Assistant

Occupa-tions >>		Consumer Service & After Service						Finance & Accounts		Advertisement & PR	Human Resource		Corporate & Legal
Tracks	NSQF LEVEL	Commisioning	Installation	Consumer Operations	Maintenance	Repair	Customer Care	Audit and Accounting	Financial Planning & Analysis	Digital Marketing	Recruitment & Compensation	Learning and Development	Corporate Affairs & Legal
Management	9	Proprioter/ Partner											
	8, 9	Head, Support & Warranty						Head, Accounts		Head, Advertisements	Head, HRO		VP/GM - Corporate Affairs/ Legal
	8	AVP/VP/SVP - Zonal Operations			AVP/VP/SVP - Support		AVP/VP/SVP - Customer Care	AVP/VP/SVP - Audit and Accounting	AVP/VP/SVP - Financial Planning and Analysis	AVP/VP/SVP - Transaction Processing	AVP/VP/SVP - HRO		AVP/ AGM - Corporate Affairs / Legal
Middle Management	7	Zonal Commisioning Head	Zonal Installation Head	MSO Manager	Zonal Support and Warranty Head		Manager - Customer Care	Manager - Audit and Accounting	Manager - Financial Analysis & Planning	Manager - Online Media	Manager - Recruitment	Manager - HRO L&D	Sr Manager - Corporate Affairs / Legal
		District Incharge Commisioning	Installations Lead		District Incharge Maintenance	District Incharge Repair	Team Leader - Customer Care	Team Leader - Audit and Accounting	Team Leader- Financial Planning and Analysis	Online Media Specialist	Team Leader - Recruitment	Team Leader - HRO L&D	Manager - Corporate Affairs / Legal
	6	Sr. Engineer-Comimisioning	Sr. Engineer-Product Installation	Downlink Technician	Maintenance Supervisor	Repair Supervisors	Senior Associate - Customer Care						Asttn. Manager Corporate Affairs / Legal

Occupa-tions	>>	Consumer Service & After Service					D	Finance & Accounts		Advertisement & PR	Human Resource		Corporate & Legal
Tracks	NSQF LEVEL	Commisioning	Installation	Consumer Operations	Maintenance	Repair	Customer Care	Audit and Accounting	Financial Planning & Analysis	Digital Marketing	Recruitment & Compensation	Learning and Development	Corporate Affairs & Legal
Execution Level	5	Commisioning Engineer	Installation Engineer	LCO Manager	Maintenance Engineer	Repair Engineer	Specialist - Customer Care	Senior Associate - Audit and Accounting	Senior Associate - Financial Planning and	Sr Media Associate	Senior Associate -	Senior Associate - HRO L&D	Senior Legal Associate
		Supervisor - Commisioning	Supervisor - Installation	Local Cable Supervisor	Sr Maintenance Technician	Sr Repair Technician	Sr Associate - Customer Care	Sr Accounts Associate	Sr Finance Executive	Media Associate	Sr Associate - HRO	Master Trainer	Legal Associate
	4	Sr Commisioning Technician	Installation Technician	Local Cable Operator	Maintenance Technician	Repair Technician	Associate - Customer Care	Accounts Trainee	Finance Executive Trainee	Media Trainee	Associate - HRO	Sr Trainer	Jr Legal Associate
	3	Commisioning Technician	Field Installation Technician Trainee	Set Top Box Install Technician / Cable Operation Technician	Maintenance Trainee	Repair Trainee	Customer Care Executive					Trainer	

BACK

23. Job Roles in Communication Sub-Sector

Major Roles Related to System Integration and End Users in the Communications segment
Listed below are roles which comprise key skills related to System Integration and End Users in the Communications segment. Other roles relating to OEMs segment and higher management and supporting functions such as finance, administration, purchase, HR and corporate affairs are not included - although these are identified in the OM. The job role identification is based on industry interaction, feedback and data received from various emails, visits and questionnaires.
Job Roles in general have Junior, Assistant, Senior classifications which convey their depth of knowledge and skills in the occupation. These have not been expanded in the following list, in the interest of clarity.

A. Installation & Commissioning (Level 3,4,5) (11):

1. Installation & Commissioning Technician-Video & Audio Conferencing
2. Installation & Commissioning Technician-Community radio
3. Installation & Commissioning Technician-GPS system
4. Headend Installation & Commissioning Technician
5. Installation & Commissioning Technician-Radio Station
6. Installation & Commissioning Technician-Radio Station Studio
7. Installation & Commissioning Technician-TV Distribution Platform
8. Installation & Commissioning Technician - TV Distribution Receiving System
9. Installation & Commissioning Technician-Virtual classroom
10. Installation & Commissioning Supervisor-Radio Station Studio
11. Installation & Commissioning Supervisor-Radio Station

B. Operation (Level 3,4,5) (10):

1. Operation Technician-Radio Station
2. Operation Technician-Radio Station Transmitter
3. Operation Technician-TV Channel
4. Operation Technician -TV Distribution Platform
5. Operation Technician-Radio Station Studio
6. Operator-Community radio
7. Operator-Virtual classroom
8. Operator-Video & Audio Conferencing
9. Operation Technician-Headend
10. Operator Technician - TV Distribution Receiving System

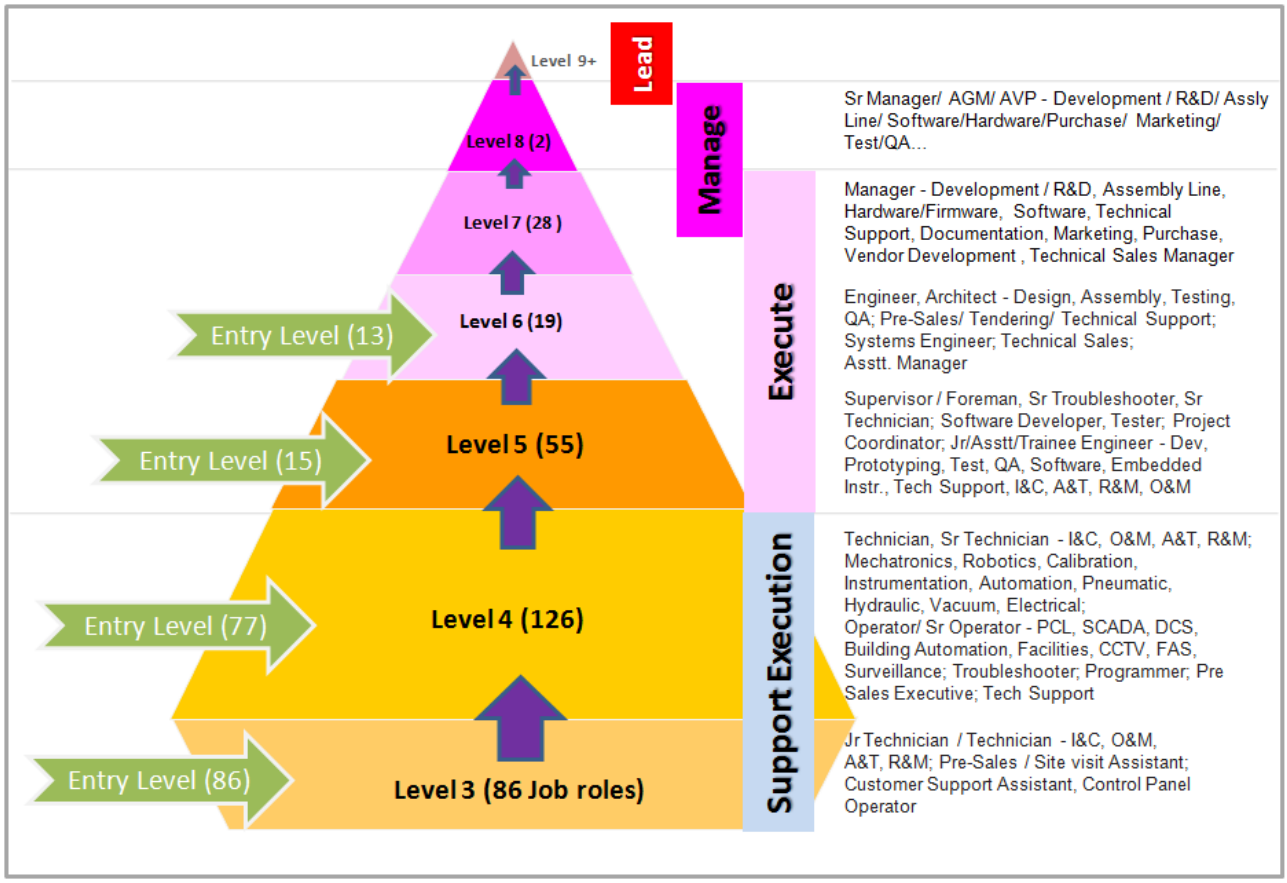
C. Repair & Maintenance (Level 3,4,5) (9):

1. TV Channel Maintenance Technician
2. TV Distribution Platform Maintenance Technician
3. Repair Technician-Community radio
4. Repair Technician-GPS system
5. Headend maintenance technicians
6. Repair Technician - TV Distribution Receiving System
7. Maintenance Technician-Radio Station
8. Repair Technician-Virtual classroom
9. Repair Technician-Video & Audio Conferencing

BACK

24. Opportunity Pyramid for the IASC Sector

We have arrived at Job Roles at different NSQF levels which comprise approximately 80% of the workforce in the IASC sector across the respective sub-sectors and segments based on industry interaction, feedback and extrapolating from the limited data received from various emails, visits, workshop discussions and questionnaires.



Workforce distribution

The industry perception of the relative distribution of workforce among sub-sectors and segments is as follows:

- I&A End User segment: 60% of workforce
- Surveillance SI/Service Providers/Contractors : 20% of workforce
- Communication SI and MSOs: 10% of workforce
- I&A SI/Service Providers/Contractors: 5% of workforce
- Other : 5% of workforce

Table 1: Estimated Distribution of Workforce in different Segments and Levels

Level	No of Unique Job Roles (All sub-sectors)	Entry Level Job Roles (All sub-sectors)	Job roles in Sub Sectors			Total Roles (Non Unique)
			I&A	SURV	COMM	
Level 3	86	86	13	68	9	90
Level 4	126	77	93	31	19	143
Level 5	55	15	42	29	2	73
Level 6	19	13	18	12	0	30
Level 7	28	0	23	18	0	41
Level 8	2	0	2	1	0	3
Total	316	191	191	159	30	380

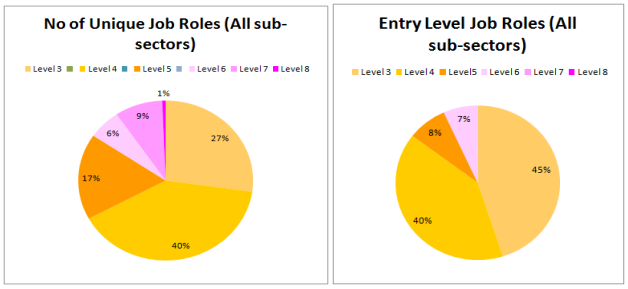


Table 2: Estimated Distribution of Job Roles Constituting 80% Workforce

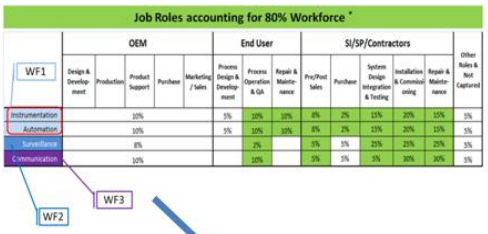
Job Roles accounting for 80% Workforce *

	OEM					End User			SI/SP/Contractors					Other Roles & Not Captured
WF1	Design & Develop-ment	Production	Product Support	Purchase	Marketing / Sales	Process Design & Develop-ment	Process Operation & QA	Repair & Mainte-nance	Pre/Post Sales	Purchase	System Design Integration & Testing	Installation & Commissi-oning	Repair & Mainte-nance	
Instrumentation	10%					5%	10%	10%	8%	2%	15%	20%	15%	5%
Automation	10%					5%	10%	10%	8%	2%	15%	20%	15%	5%
Surveillance	8%						2%		5%	5%	25%	25%	25%	5%
Communication	10%						10%		5%	5%	5%	30%	30%	5%

WF3

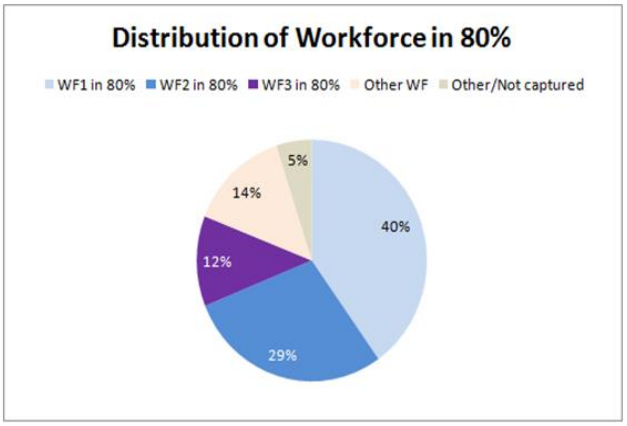
WF2

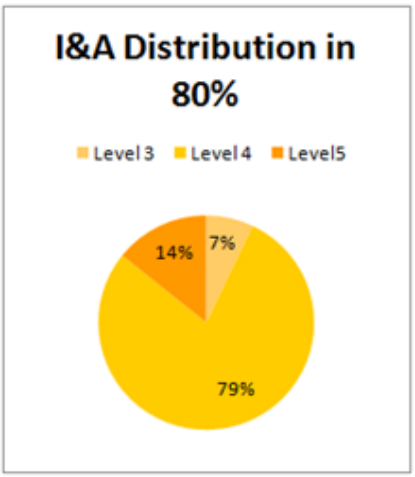
Contd.... Estimated Distribution of Job Roles Constituting 80% Workforce

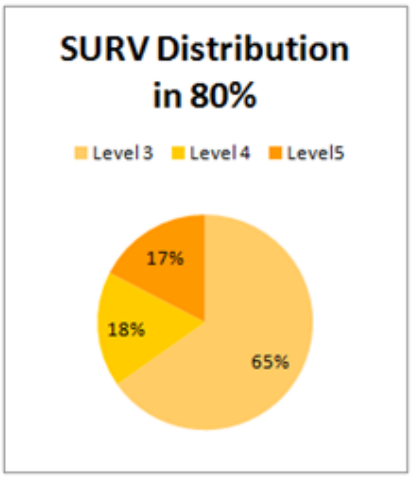


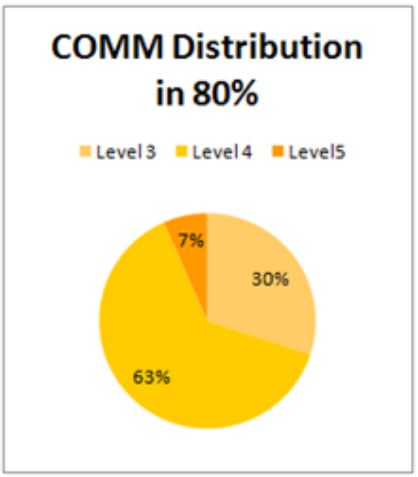
Segment	% Workforce
WF1 in 80%	40%
WF2 in 80%	29%
WF3 in 80%	12%
Other WF	14%
Other/Not captured	5%

81%









BACK

25. Job Roles in the First Phase of Implementation

The following Job Roles have been selected for the first phase:

Note:

1. All the selected Job Roles are entry level jobs
2. Selection has been done across segments at different levels
3. Industry demand exists for these Job Roles
4. The Job Roles are covered in the group the covers 80% of the total estimated potential

Sl	Job Role	Sub-sector	QP Reference	NSQF LEVEL	Justification
1	Junior Instrumentation Technician - (Process Control)	Instrumentation	IAS/Q3003	3	Entry level job with potential. Covered in 80%
2	Instrumentation Technician - (Control Valves)	Instrumentation	IAS/Q3001	4	Entry level job with potential. Covered in 80%
3	Calibration Technician - (Thermal)	Instrumentation	IAS/Q5001	4	Entry level job with potential. Covered in 80%
4	Building Automation Engineer	Automation	IAS/Q3006	5	Entry level job with potential. Covered in 80%
5	Automation Solutions Engineer	Automation	IAS/Q8005	5	Entry level job with potential. Covered in 80%
6	Embedded Instrumentation Engineer	Instrumentation / Automation/ Surveillance	IAS/Q5601	5	Entry level job with potential. Covered in 80%

These Job Roles are mapped to relevant OMs as shown below:

BACK

Part A | Part B

Occupation Map - Instrumentation & Automation for End User Industry

Abbreviations

I&C = Installation & Commissioning
O&M = Operation & Maintenance
R&D= Research & Development
S&M = Sales & Marketing
R&M = Repair & Maintenance

Legends

- Top Management
- Middle Management
- Execution level (individual performers)

Occupa-tions >>	NSQF LEVEL	R&D	Production & Maintenance			Testing & Quality Assurance		Stores/ Material Management/ Inventory Control	Product Packaging & Dispatches	Corporate Affairs & Legal
Management	8,9	Chief Executive Officer / Managing Director/ President								
	8	Director/VP/GM/ Chief Scientist / Chief Engineer Products & Process R&D	Director/VP/ GM-Production/ Process/ Line	Director/VP/ GM- Maintenance		Director/VP/ GM Testing & quality Assurance		Director/VP/ GM: MM/ Stores		Director/ President : Corporate Affairs/ Legal
		Product Managers / Distinguished Engineer, Principal Engineer, Process & Technology Expert/ Principal Scientist	AGM Production/ Process/ Line	AVP/ AGM - Automation	AVP/AGM - Instrumnetation	AVP/AGM - Testing & Calibration	AVP/AGM - Quality Assurance	AVP/ AGM Material Management/ Stores	AVP/AGM Packaging / Dispatches	VP/ GM : Corporate Affairs / Legal
Middle Level	7	Team Leader/ Senior Engineer/ Sr Process Specialist/ Senior Scientist / Sr Product Designer / Product Specialist/Lab Manager	Sr. Manager Production/ Process/ Line	Sr. Manager - Automation	Sr. Manager - Instrumentation	Sr Manager: Testing & Calibration	Sr Manager: Quality/ Process Assurance	Sr. Manager: MM/ Stores	Sr Manager Packaging/ Dispatches	AVP/ AGM : Corporate Affairs / Legal
		Supervisor/ Senior Engineer/ Process Specialist/ Prodct Specialist/ Product Designer/ Scientist/ Product Testing/ Lab Incharge	Production/ Line/ Process Incharge	Manager - Automation	Manager - Instrumentation	Manager: Testing & Calibration	Manager: Quality/ Process Assurance	Manager: MM/ Stores	Manager Packaging/ Dispatches	Sr. Manager - Corporate Affairs / Legal
		Scientist / Process Engineer / Asst. Product Designer/ Lab Incharge	Shift Incharge	Sr Engineer - Automation / Asstt Manager - Automation	Sr Engineer- Instrumentation / Asstt Manager - Instrumentation	Sr Engineer Testing / Calibration/ Asstt. Manager - Testing & Calibration	Sr. Engineer Quality/ Process Assurance/ Asstt Manager - Quality/ Process Assurance	Asstt Manager- MM/ Stores	Asstt Manager Packaging/ Dispatches	Manager - Corporate Affairs / Legal
	6	Scientist/ Engineer/ Sr Lab Assistant	Shift Supervisor	Engineer - Automation	Engineer - Instrumentation	Engineer - Testing / Calibration	Engineer quality/ Process Assurance	Supervisor: MM/ Stores	Packaging Supervisor	Asttn. Manager Corporate Affairs / Legal
Entry Level	5	Junior Scientist/ Trainee Engineer/ Lab Assistant	Sr. Operator Production/ Line/ Process	Jr / Asstt/ Trainee Engineer - Automation	Jr / Asstt/ Trainee Engineer - Instrumentation	Jr / Asstt/ Trainee Engineer - Calibration	Jr / Asstt/ Trainee Engineer - Quality/ Process Assurance	SrStores Assistant	Sr Packaging Assistant	Senior Legal Associate
			Operator Production/ Line/ Process	Sr Technician - Automation	Sr Technician - Instrumentation	Sr Technician - Testing / Calibration	Sr Technician - Quality/ Process Assurance			
	4		Jr. Operator Production/ Line/ Process	Technician - Automation	Technician - Instrumentation	Technician - Testing / Calibration	Technician - Quality/ Process Assurance	Stores Assistant	Packaging Assistant	Legal Associate
	3		Operator Helper	Technician, Assistant - Automation	Technician, Assistant - Instrumentation	Technician, Assistant - Testing / Calibration	QA Helper	Stores Helper	Jr Packaging Assistant	Assistant Legal Associate

Instrumentation Technician (Control Valves)

Junior Instrumentation Technician (Process Control)

Calibration Technician(Thermal)

Part A

Abbreviations

I&C = Installation & Commissioning
O&M = Operation & Maintenance
R&D= Research & Development
S&M = Sales & Marketing
R&M = Repair & Maintenance
BD = Business Development

Legends

Top Management
Middle Management
Execution level (individual performers)

Occupation Map - Instrumentation & Automation f

Occupations >>		Research & Development				Manufacturing						
Tracks	NSQF LEVEL	Product Research & Design	Product Development			Production & Maintenance			Testing & Quality Assurance		Stores/ Material Management/ Inventory	Product Packaging & Dispatches
Management	9	Managing Director/ Chief Executive Officer/										
	8,9	VP/GM/Director /Head /Chief Engineer/ Chief Technology Officer Research & Product Development				Director/ President - Plant/ Operations & Maintenance						
	8					VP/ GM- Production/ Process/ Line	VP/ GM- Maintenance		VP/ GM Testing & quality Assurance		VP/ GM: MM/ Stores	
		Principal Scientist / Principal Engineer / Chief Architect / R&D Manager/ Product Manager				AGM Production/ Process/ Line	AVP/ AGM - Automation	AVP/AGM - Instrumnetation	AVP/AGM - Testing & Calibration	AVP/AGM - Quality Assurance	AVP/ AGM - Material Management/ Stores	AVP/AGM - Packaging / Dispatches
Middle Management	7	Sr Engineer / Sr Scientist -Design	Program Manager - Product Development			Sr Manager Production/ Process/ Line	Sr Manager - Automation	Sr Manager - Instrumentation	Sr Manager - Testing & Calibration	Sr Manager - Quality/ Process Assurance	Sr Manager - MM/ Stores	Sr Manager Packaging/ Dispatches
			Manager - Product Development			Production/ Line/ Process Incharge	Manager - Automation	Manager - Instrumentation	Manager - Testing & Calibration	Manager - Quality/ Process Assurance	Manager - MM/ Stores	Manager Packaging/ Dispatches
			Asstt Product Manager, Team lead, Product Incharge	Asstt Product Manager, Team lead, Product Incharge	Asstt Product Manager, Team lead, Product Incharge	Shift Incharge	Assitant Manager - Automation	Assitant Manager - Instrumentation	Asttn. Manager - Testing & Calibration	Asttn. Manager - Quality/ Process Assurance	Asttn. Manager - MM/ Stores	Asttn. Manager Packaging/ Dispatches
			Sr Engineer - Development	Sr Engineer - Testing	Sr Engineer - Qualification	Shift supervisor	Sr Engineer - Automation	Sr Engineer - Instrumentation	Sr Engineer - Testing / Calibration	Sr Engineer - Quality/ Process Assurance	Supervisor - MM/ Stores	Supervisor - Packaging
	6	Engineer / Scientist - Design	Engineer / Scientist - Development/Prototyping	Engineer / Scientist - Testing	Engineer / Scientist - Product Qualification	Sr Operator Production / Line/ Process	Engineer - Automation	Engineer - Instrumentation	Engineer - Testing / Calibration	Engineer - Quality/ Pocess Assurance	Sr MM/Stores Assistant	Sr Packaging Assistant
Execution	5	Jr/Trainee Engineer /Jr Scientist - Design	Jr/Trainee Engineer /Jr Scientist - Development/ Prototyping	Jr/Trainee Engineer /Jr Scientist - Testing	Jr/Trainee Engineer /Jr Scientist - Product Qualification	Operator Production / Line/ Process	Jr/Asstt/Trainee Engineer - Automation	Jr/Asstt/Trainee Engineer - Instrumentation	Jr/Asstt/Trainee Engineer - Testing / Calibration	Jr/Asstt/Trainee Engineer - Quality/ Pocess Assurance	MM/Stores Assistant	Packaging Assistant
		Sr Technician - Dev, Testing, Prototyping, Qualification	Sr Technician - Dev, Testing, Prototyping, Qualification	Sr Technician - Dev, Testing, Prototyping, Qualification	Sr Technician - Dev, Testing, Prototyping, Qualification		Sr Technician/ Supervisor - Automation	Sr Technician/ Supervisor - Instrumentation	Sr Technician/ Supervisor - Testing / Calibration	Sr Technician/ Supervisor - Quality/ Process Assurance		
	4	Technician - Dev, Testing, Prototyping, Qualification	Technician - Dev, Testing, Prototyping, Qualification	Technician - Dev, Testing, Prototyping, Qualification	Technician - Dev, Testing, Prototyping, Qualification	Jr Operator Production / Line/ Process	Technician - Automation	Technician - Instrumentation	Technician - Testing / Calibration	Technician Quality/ Process Assurance	Jr MM/Stores Assistant	Jr Packaging Assistant
	3	Jr Technician	Jr Technician	Jr Technician	Jr Technician		Jr Technician	Jr Technician	Jr Technician		Sotres Helper	Packaging Helper
							Technician Helper	Technician Helper	Technician Helper			

Embedded Instruentation Engineer

Automation Solution Engineer

IASC SECTOR SKILL COUNCIL

N·S·D·C National Skill Development Corporation

Abbreviations

I&C = Installation & Commissioning
O&M = Operation & Maintenance
R&D= Research & Development
S&M = Sales & Marketing
R&M = Repair & Maintenance
BD = Business Development

Legends

Top Management
Middle Management
Execution level (individual performers)

Occupation Map - Instrumentation & Automation for SI

>>	Sales & Marketing					Engineering, Installation, Commissioning, Operations & After Service				Finance & Accounts			Human Resource		Procure-ment	Corporate Affairs & Legal
NSQF LEVEL	Channel Sales (B2C)	Institutional Sales (B2B)	Product Marketing/ Business Development	Pre-Sales/ Tendering / Technical support	Training	Product Engineering/ System Design	Product/ System I&C	Product/ System O&M	Product/ System R&M	Audit and Accounting	Taxation	Finance (includes Budgeting & Forecasting)	Recruitment & Compensation	Learning and Development	Purchase	Corporate Affairs & Legal
8,9	Director/ President : Sales/ Marketing/ Business Development					Director/ President - Projects/ Engineering/ Contracts/ After Sales				Director/ President : Finance & Accounts			Director/ President : HR		Director/ President : HR	Director/ President : Corporate Affairs/ Legal
8	VP/ GM: Sales		VP/ GM : Marketing			VP/ GM : Engineering/ System Design	VP/ GM : I&C	VP/ GM : O&M	VP/ GM : Product support / Repair	VP/ GM : Accounts	VP/ GM : Taxation	VP/ GM : Finance	VP/ GM : HR	VM/GM Training	VP/ GM : Purchase	VP/ GM : Corporate Affairs / Legal
7,8	AVP/ AGM: Channel Sales	AVP/ AGM: Institutional Sales / Business Development	AVP/ AGM: Marketing/ Business Development		AVP/AGM - S&M Training	AVP/ AGM : Engineering/ System Design	AVP/ AGM : I&C	AVP/ AGM : O&M	AVP/ AGM : Support & Repair	AVP/ AGM : Accounts	AVP/ AGM : Taxation	AVP/ AGM : Finance	AVP/ AGM : HR	AVP/ AGM : Training	AVP/ AGM : Purchase	AVP/ AGM : Corporate Affairs / Legal
7	Sr. Manager: Channel Sales	Sr. Manager: Channel Sales	Sr. Manager : Marketing/ BD	Sr. Manager- Pre-Sales/ Tendering/ Technical Support rt	Sr. Manager - S&M Training	Sr. Manager - Engineering & System Design	Sr. Manager - I&C	Sr. Manager - O&M	Sr. Manager - Support & Repair	Sr. Manager - Accounts	Sr. Manager - Taxation	Sr. Manager - Finance	Sr. Manager - HR	Manager - Training	Sr. Manager - Purchase	Sr. Manager - Corporate Affairs / Legal
	Manager: Channel Sales	Manager: Channel Sales	Manager : Marketing/ BD	Manager- Pre-Sales/ Tendering/ Technical Support	Manager - S&M Training	Manager - Engineering/ & System Design	Manager - I&C	Manager - O&M	Manager Support & Repair	Manager - Accounts	Manager - Taxation	Manager - Finance	Manager - HR	Master Trainer	Manager - Purchase	Manager - Corporate Affairs / Legal
	Asstn. Manager: Channel Sales; Zonal Manager	Asstn. Manager: Channel Sales	Asttn. Manager : Marketing/ BD	Asst. Mgr: Pre-Sales/ Tendering/ Technical Support	Sr. S&M Trainer	Asttn. Manager Engineering &/ System Design / Sr. Engineer Engineering &/ System Design	Asttn. Manager I&C / Sr. Engineer I&C	Asttn. Manager O&M / Sr. Engineer- O&M	Asttn. Manager Support & Repair / Engineer Support & Repair	Manager - Accounts	Asttn. Manager Taxation	Asttn. Manager Finance	Asttn. Manager HR	Sr. Trainer	Asttn. Manager Purchase	Asttn. Manager Corporate Affairs / Legal
	Sr. Sales Engineer/ Territory Manager	Sr. Sales Engineer	Sr. Engineer: Marketing/ Sales	Sr. Engineer: Pre-Sales/ Tendering/ Technical Support	S&M Trainer					Asttn. Manager Accounts	Jr. Manager Taxation	Jr. Manager Finance	Jr. Manager HR		Jr. Manager Purchase	Senior Legal Associate
6	Sales Executive / Engineer	Sales Executive / Engineer	Sales Executive / Engineer	Sales Executive / Specialist/ Engineer	S&M Trainer	Engineer System Design	Sr Supervisor/ Engineer I&C	Sr Supervisor/ Engineer O&M	Sr Supervisor/ Engineer R&M	Jr. Manager Accounts	Sr. Taxation Associate	Sr. Finance Associate	Sr. HR Associate	Trainer	Sr. Purchae Officer	Legal Associate
5	Jr/Asstt/Trainee Engineer - Pre Sales	Jr/Asstt/Trainee Engineer - Pre Sales	Jr/Asstt/Trainee Engineer - Pre Sales	Jr/Asstt/Trainee Engineer / Specialist - Pre-Sales/ Tendering/ Tech Support	S&M Trainer	**Jr /Asstt / Trainee Engineer System Design**	Supervisor I&C	Supervisor O&M	Supervisor R&M	Sr. Accounts Associate	Taxation Associate	Finance Associate	HR Associate	Jr Trainer	Purchae Officer	Assistant Legal Associate
	Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive	Sr Sales Assistant / Sr Pre Sales Executive	S&M Trainer		Sr Technician I&C	Sr Technician O&M	Sr Technician R&M				HR Associate	Jr Trainer	Purchae Officer	Assistant Legal Associate
4	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive	Sales Assistant / Pre Sales Executive			Technician I&C	Technician O&M	Technician R&M	Accounts Associate	Taxation Associate	Finance Associate	HR Associate		Purchae Assistant	
3							Jr / Asstt Technician C&I	Jr / Asstt Technician O&M	Jr / Asstt Technician	Accounts Trainee	Taxation Trainee	Finance Trainee	HR Trainee			

Building Automation Engineer