

4. RESULTS – JOB MARKET AND JOB PROFILES

IN COMPANIES

4.1 Number of Standards Professionals in Companies

(1) 11.4% of Total Employees are involved in standards-related tasks

The responses from the 26 companies show that around 11.4% of their total employees are involved in standards-related tasks. Although this figure should not be over - generalized, 24 companies do have employees who are in charge of standardization, conformity assessment, and metrology -related tasks.

<Table 6> (In Companies) On average 11.4% of the Total Employees Have Standards-related Tasks

<i>No.</i>	<i>Total Employees</i>	<i>Standards-related Employees</i>	<i>Ratio (%)</i>	<i>Industry Sector</i>
1	120	0	0.0%	Energy
2	190	0	0.0%	Steel
3	30,000	65	0.2%	Electronics
4	146,300	300	0.2%	Electronics
5	70,000	280	0.4%	Electronics
6	300,000	1300	0.4%	Electronics
7	306	4	1.3%	Non-profit
8	29,394	450	1.5%	Electronics
9	1,500	45	3.0%	Steel
10	400	16	4.0%	Food
11	8,500	350	4.1%	Electronics
12	8,000	430	5.4%	Construction
13	500,000	29534	5.9%	Aerospace
14	1,200	100	8.3%	Energy
15	1,600	137	8.6%	Automobile
16	40,000	3600	9.0%	Electronics
17	1,031	103	10.0%	Construction
18	252	33	13.1%	Food
19	15,000	2000	13.3%	Steel
20	25,000	3700	14.8%	Electronics
21	470	85	18.1%	Chemical
22	120	22	18.3%	Electronics
23	86	29	33.7%	Non-profit
24	2,200	830	37.7%	Energy
25	153	64	41.8%	Electronics
26	1,500	650	43.3%	Automobile
Total	1,183,322	44,127	296%	--
Average	45,512	1,697	11.4%	--

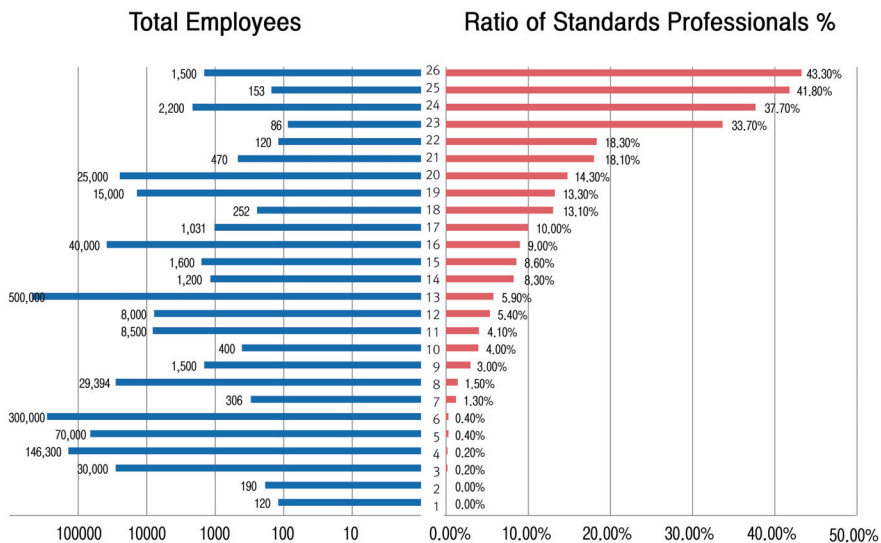
4.2 Comparison of Large and Small Companies

Due to the confidentiality concerns expressed by some of the participating companies, we decided not to disclose all the company information. However, the results do show that the ratio of standards-related employees (standards professionals), are neither directly nor inversely proportional to the number of total employees or the size of company as shown in Figure 8. The same observation applies to the industry sector. The average ratio of the 10 companies in the electronics sector was 9.1%, but the ratio varied from 0.2% (a company with 30,000 total employees) to 41.8% (a company with 153 total employees).

Such ratio variations could originate for different reasons. One main reason could be different counting for the survey; some companies may have counted only direct or full-time standards engineers, while others may have counted all employees who handle somewhat standards-related tasks, but as secondary duties.

Regardless of this data limitation, these responses do provide us with sound evidence that there is a job market for standards professionals in private companies of different sizes and from different industries in the region.

<Figure 8> (In Companies) Ratio of Standards Professional to Total Employees is Not Proportional

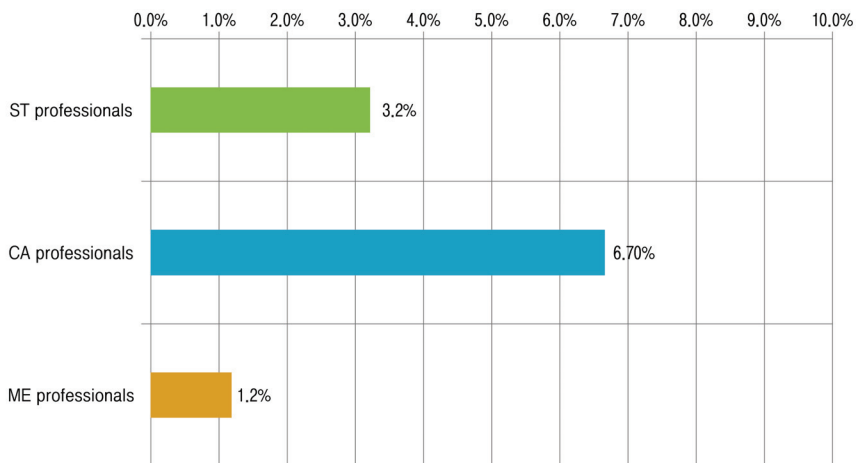


4.3 Standards Professionals in Three Domains of ST, CA, ME

Drawing on the 26 responses, on average, 3.4% of these total employees have tasks related to standardization, 6.7% related to conformity assessment, and 1.2% have tasks related to metrology. Again, the average ratio was also calculated as the average of 26 ratios, respectively, to avoid any distortion caused by big company partiality.

Among these three domains, conformity assessment professionals ranked first, followed by professionals of standardization and metrology. This result indicates that more employees are involved in the application/use of standards (conformity assessment) than in the development/dissemination of standards (standardization). Metrology professionals showed the lowest number in all three domains. (see Figure 9)

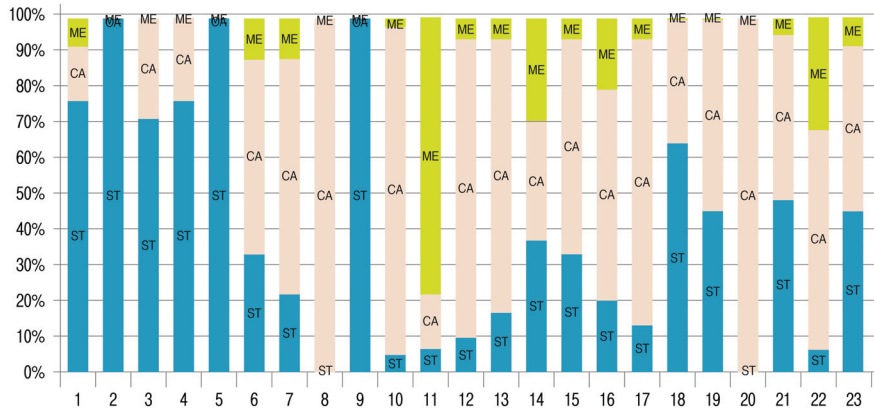
<Figure 9> (In Companies) On Average, CA professionals Hold the Largest Number of Jobs



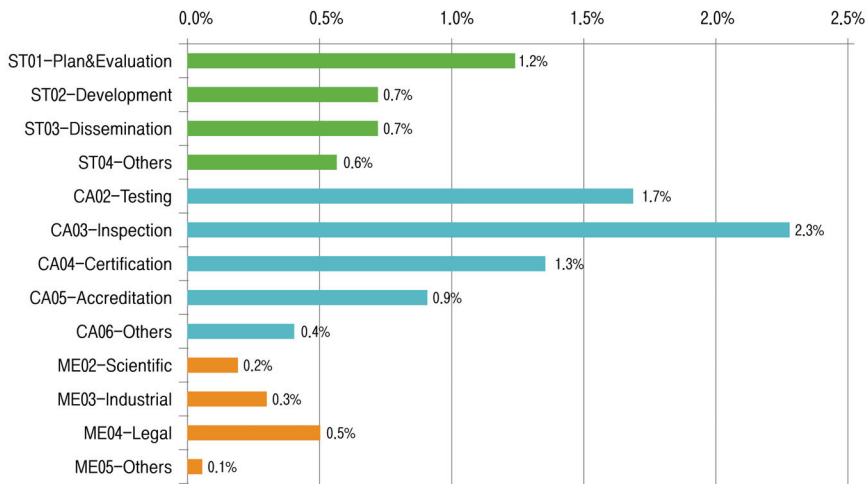
The composition ratios for standardization (ST), conformity assessment (CA), and metrology professionals (ME) in the 26 companies, respectively, showed no common tendency. Standardization professionals are the largest group in some companies (Company 1, 2, and 3) while conformity assessment professionals were the largest group in many other companies. In only one, Company 11, were metrology professionals the largest group. The ratio may also be linked to the products and services these companies

provide, so future study should investigate that linkage between the characteristics of a company and its standards professionals.

<Figure 10> (In Companies) The Composition of Standards Professionals in Respective Companies Are Dissimilar



<Figure 11> (In Companies) On Average ST01 (Plan), CA02 (Inspection), ME (Legal) hold the Largest Number of Jobs



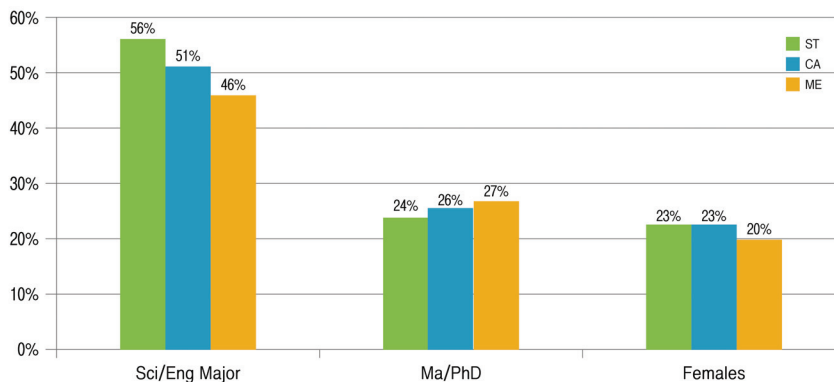
The survey also inquired on the number of employees in each sub-classification of standards professionals as described in Chapter 3. Figure 11 summarizes this result. In the standardization category, standards planning and evaluation (ST01) has the largest

number of jobs on average, followed by standards development and dissemination. In conformity assessment, Inspection(CA02) and Testing(CA01) have the largest number jobs followed by certification (CA03). In metrology category, legal metrology (ME04) has the largest numbers jobs on average followed by industrial metrology (ME02). Please note that these survey results do not include Conformity planning & evaluation (CA01) and Metrology planning & evaluation (ME01) because these two sub-categories were added after the survey was conducted.

4.4 Competency Characteristics of Current Employees

To understand the job market better, we collected information on the basic characteristics of standards professionals – science/engineering degree holders, master/PhD degree holders, and females. We note Figure 12 that nearly half of the standards professionals majored in science and engineering. Standardization professionals in these companies had the highest rate of science/engineering majors while metrology professionals had the lowest. For advanced degree holders, there was very little difference among the three category professionals, as around one quarter hold Master/PhD degrees. A total of 22 Companies responded to this section of the survey

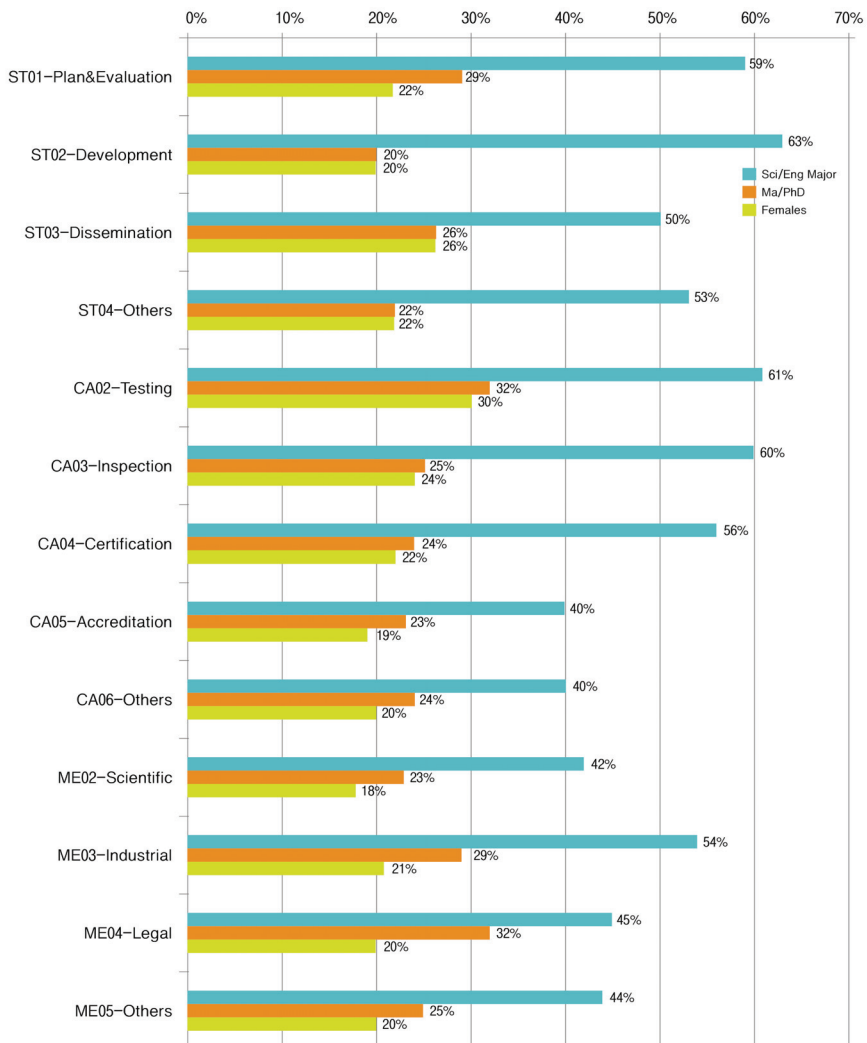
<Figure 12> (In Companies) Current Employees – Half of the Employees Majored in Science/Engineering; about One-Quarter Hold Advanced Degrees and Are Females



Here Figure 12, the characteristics are matched to each sub-category of the standards professionals. For science and engineering majors, professionals in standards development (ST02) and testing (CA02) had the highest numbers, while accreditation

(CA05) had the lowest. For the advanced degree holders, testing (CA02) and legal metrology (ME04) showed the highest ratio. Testing(CA02) professionals held the highest ration of female experts. Again, these results should not be over-generalized but considered as an adequate sample of information, we tested but a small part of the real job market only.

<Figure 13> (In Companies) Current Employees – Characteristics According to Each Category

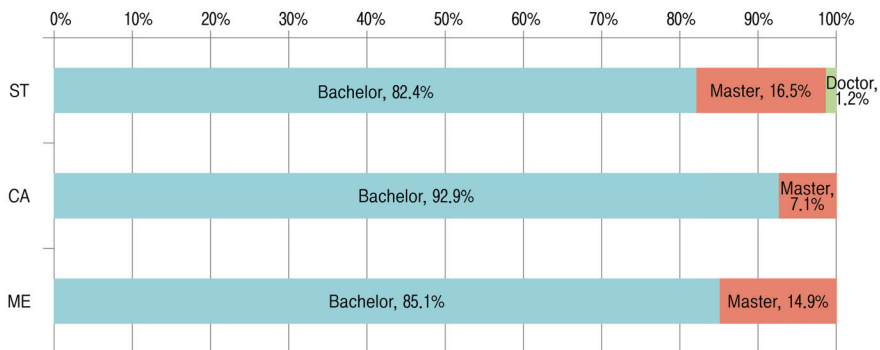


4.5 The Expected Competency Requirement of New/Potential Employees

When companies have any vacancies, they will have in place certain internal requirements or expectations when recruiting new employees. This section analyzes the minimum or preferred requirements for their potential employees by education degree, education major, work experience, required/preferred personnel certification, and future needs for personnel certification.

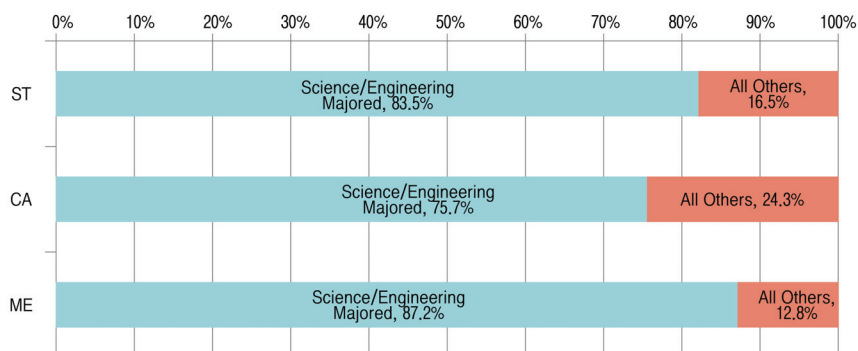
In terms of a required education degree, a Bachelor degree is the most common, and while some employees do require a Master's degree, very limited positions require a PhD. Overall, standardization professionals need a slightly higher academic degree than do those in conformity and metrology positions. For standardization positions (ST), about 82.4% require a Bachelor degree, 16.5% require a Master's degree, and only 1.2% require a Ph.D degree. For conformity assessment positions (CA), about 92.9% require a Bachelor degree, and 7.1% require a Master's degree as a minimum education. For metrology positions, 85.1% require a Bachelor's degree, and 14.9% require a Master's degree as a minimum education.

<Figure 14> (In Companies) Minimum Degree Requirements



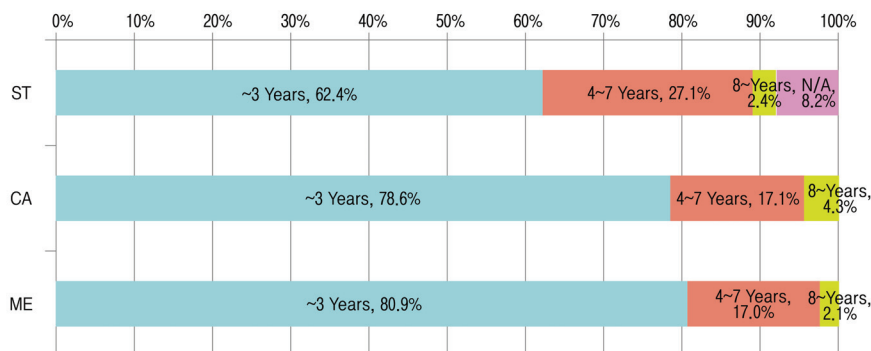
To determine the required or preferred major, we simply asked whether employers require or prefer science/engineering majored employees or do not. The results show that most positions do require science/engineering major. Metrology positions require the highest rate at 87.2%, while standardization positions are 83.5%, and conformity positions require 75.7%. (see Figure 15)

<Figure 15> (In Companies) Preference for Science/Engineering Majors



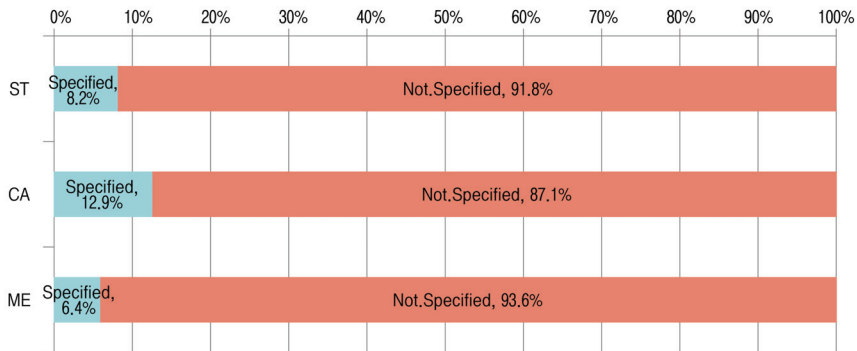
For the required minimum work experience, nearly 37.6% of the employers require more than 4 years of work experience in standardization positions, while 21.4% require 4 years in conformity assessment positions and 19.1% require above 4 years' experience in metrology positions. (See Figure 16)

<Figure 16> (In Companies) Minimum Work Experience Requirements



Personnel certification is not popularly used in job postings seeking for standards professionals. Only around 10% of the survey positions required certification. Conformity assessment positions used personnel certification more than standardization and metrology field as a requirement. (See Figure 17)

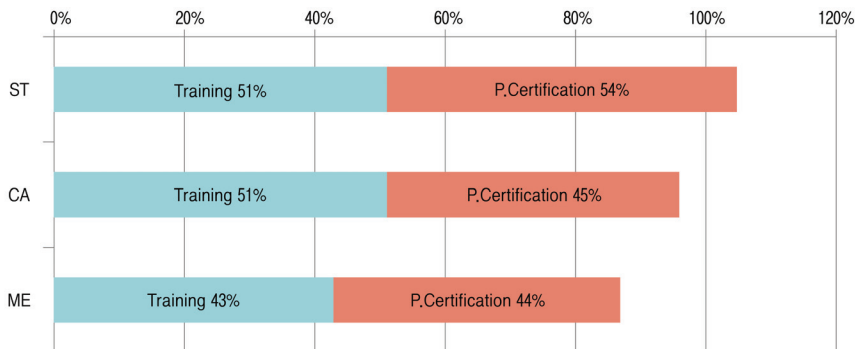
<Figure 17> (In Companies) Personnel Certification Requirements



4.6 Future Need for Training and Personnel Certification

Among the three fields, those positions related to standardization needed the highest level of training and personnel certification. In particular, a future need for personnel certification was the highest (54%) for the standardization field.

<Figure 18> (In Companies) Future Needs for Training and Personnel Certification



4.7 Examples of Typical Job Postings

Job advertisements provide us with a good opportunity to recognize the valid needs of industry for standards professionals. Table 7 presents thirteen real sample advertisements from nine different participating companies and notes the position title, descriptions of the major tasks, and minimum and/or competency requirements for each position.

<Table 7> (In Companies) 13 Company Job Posting Examples

1) Position Title : Standards Manager [ST01]

> Description

1. Plan standards strategy;
2. Place technology innovation projects into international or national standards;
3. Participate in the international standards organization, contribute to meetings and related standardization activities;
4. Organize and put forward proposals for international and national standards;
5. Establish international standard library resources for company.

> Requirements

- Degree: Ph.D
- Major : Science & Engineering
- Experience:3 + years。 Strong communication and coordination abilities demonstrating clear and logical thinking

2) Position Title : Engineer [ST02]

> Description

- Standards development

> Requirements

- Master's majoring in Science or Engineering with minimum 3 years' related experiences

3) Position Title: Technical Chief Assistant [ST02/ST03]

> Description:

- Prepare the Technical Project Proposal; Technical design; Technical Implementation

> Requirements

- Engineering degree; Technical experience; Standardization experience

4) Position Title : ISO Specialist [ST04]

> Description: Plan, execute, and review yearly ISO action plan. **> Requirements :**

- Master's degree with major in Business Management preferred.
- At least 3 years' working experience as internal auditor or experience applying the ISO 9001/ 27001 system.
- Certified Quality Manager.
- Fluent English in both speaking and writing.

5) Position Title : Compliance Engineer [CA01, CA04]

> Description

- According to the R&D and market demand, obtain product certification certificate for the Production Line to make sure orders of product are timely and effectively delivered;
- Organize implementation of production safety system inspection to guarantee the consistency of production and meet factory audit requirements;
- Develop and revise product safety design handbook for guidance of product design and evaluation to ensure zero potential in safety design.
- Promote product safety risk assessment and establishment of safety risk prevention system
- Maintain files on the related certification agency, manage related affairs, and deal with the communication to and coordination of business with certification agency.

> Requirements

- Bachelor's degree or above (electronic, electrical, electronics, energy, or engineering majors.)
- 5+ years of work experience; Fluent English skills

6) Position Title : Engineer [CA01, CA02, CA03]

> Description: Conformity assessment of electrical products

> Requirements: Bachelor's degree with major in Science or Engineering , minimum 2 years of related experience

7) Position Title: Management Representative [CA01]

> Description

- Coordinate preparation of document ISO 9001 : 2008 and HACCP.
- Create a work plan for implementation and maintenance of management system ISO 9001 : 2008 and HACCP.
- Monitor achievement of the target application for ISO 9001: 2008 in each section.
- Check and validate quality manual, quality procedures, and quality document.
- Review renewal of management system ISO 9001:2008, HACCP and provision of that document based on revision of management system.
- Deal with external parties to implement QMS ISO 9001:2008 and HACCP.
- Report on the implementation of management system ISO 9001:2008 and HACCP by all sections and report to top management on the management system.
- Conduct internal audit function.

> Requirements - Candidate must possess at least a Bachelor's Degree

- At least 2 year(s) of work experience in a related field is required .
- Communication skills and presentation experience.
- Management skills; Leadership skills; Good Analytical ability

8) Position Title : Quality Control Engineer [CA01, CA03, CA04]

> Description

- Inspect all material, process production, and finish product.
 - Review results for status decision and initiate action for investigation to coordinate with production.
 - Plan, coordinate, and direct handling material for incoming quality analysis.
 - Review results for status decision and initiate action for investigation to coordinate with procurement and QC team.
 - Follow analysis validation program and ensure the reagent used is valid.
 - Undertake lab analysis; coordinate with QC team supervisor and QA team.
- > Requirements** - - Candidate must possess at least a Bachelor 's degree in Chemistry, Food Science, or Biology.
- Required language is English and Indonesian
 - At least 1 year(s) of work experience in related field.
 - Preferable specialization in Quality Control /Assurance or the equivalent.
 - Good knowledge of quality management system ISO.
 - Good personality and health.
 - Ready to work to tight deadlines with high expectations.
 - Knowledge of basic root cause analysis

9) Position Title: Research & Development [CA02, CA03]

> Description

- Perform test and inspection laboratory scale to ensure quality of products and materials.
 - Verify the sample for organoleptic parameters, chemical and microbiological
 - Analyze the results of laboratory tests to used to determine quality of product.
 - Ensure accuracy of all test Results.
 - Undertake research and development.
- > Requirements** - - Bachelor's Degree in Biology, Chemistry, Food Technology or the equivalent.
- Required language: English and Indonesian.
 - At least 4 year(s) of work experience in 2 related fields required - Applicant must be willing to work.
 - Preferably the head of Research and Development specializing in food.
 - Good analytical skills
 - Knowledge of analysis methods

10) Position Title: Quality Inspector [CA03]

> Job Descriptions

- Inspector in Final 1 area
- Static and dynamic inspection of completed vehicles

> Requirements

- Candidate must understand Quality standard requirements and qualification methodology
- Basic understanding of measurement instruments and tools
- Very keen sight and hearing
- Knowledgeable in Microsoft programs
- Driver's license preferable
- Excellent communication and interpersonal skills
- Willing and able to work in Sta. Rosa, Laguna

11) Position Title : ISO Supervisor [CA03, CA04]

> Description

- Review, implement and revise quality management systems according to ISO standards.
- Handle customer contact and communication of customer needs related to ISO system.
- Report on executive performance of ISO system to CEO yearly.
- Arrange internal auditor training.
- Be responsible for ISO system documentation.

> Requirements

- Master's degree in Business Management preferable.
- At least 5 years' work experience as Internal Lead Auditor or experience constructing ISO 9001/ 27001 system.
- Chief inspector for ISO 9001/27001.
- Fluent English in both speaking and writing.

12) Position Title : Internal Auditor [CA04]

>Description

- Perform conformity assessment requirements for quality and food safety.
- Deliver advice and recommendations on solution quality system implementation in accordance with the standard
- Ensure consistent implementation of Quality Management System.
- Ensure continual improvement program is implemented.

- > **Requirements** - University degree in Biology, Food Technology, Chemistry
- Minimum of 1 year audit -related work experience.
- Good analytical and problem solving skills.
- Excellent interpersonal and communication skills
- Good presentation skills and audit reporting.
- Good command of both written and spoken English.
- Expert in ISO 9001:2008 and HACCP

13) Position Title: Internal Calibrator [ME03]

> Description

- Plan a program of testing and calibration of instruments and equipment in accordance with the scheme, technical guidance, and other specifications.
- Modify component parts and circuit operations to specifications, using precision instruments and equipment.
- Analyze and evaluate calibration results to ensure conformity with the level of use for results of calibration for measuring instruments and inspection.

> **Requirements** - - Candidate must possess at least a Bachelor's degree in Engineering or the equivalent.

- At least 2 years of work experience in a related field is required .
- Possess comprehensive knowledge of ISO 9001:2008 and HACCP.
- English proficiency (writing and reading) preferred.
- Understand calibration, traceability and testing method.
- Have knowledge of statistical analysis methods.
- Understand validation and verification of mechanical equipment