

*Types of Jobs and Careers in the Automotive Sector for Graduates of the Automotive Engineering Department*

**Jenis Pekerjaan dan Karir di Bidang Otomotif bagi Lulusan Jurusan Teknik Otomotif**

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Toto Sugiarto<sup>1\*</sup>, M. Giatman<sup>1</sup>, Nurhasan Syah<sup>1</sup>, Dwi Sudarno Putra<sup>1</sup>, Nuzul Hidayat<sup>1</sup>, Agus Baharudin<sup>1</sup>

<sup>1</sup> Universitas Negeri Padang, Padang, Indonesia

\*E-mail: [totosugiarto@ft.unp.ac.id](mailto:totosugiarto@ft.unp.ac.id)

**Abstract**

*The research aims to describe the types of jobs in the automotive sector and record jobs entered by automotive department engineering graduates. Research is a type of qualitative descriptive, the data used is in the form of qualitative data from interviews, field observations, document analysis, and survey results. The research sample was 93 respondents, 69 respondents used a questionnaire, and 24 respondents spread over 13 companies were conducted using interview and observation techniques. The results of the study show that there are several types of jobs that graduates can enter and pursue as well as careers, into four career fields, namely: technician, sales marketing, training instructor, and teacher. For a career in mechanics, the career paths are mechanic, mechanic team leader, mechanic chief, service advisor, workshop head, and service manager. Career paths in sales marketing, namely: sales during training, sales marketing 1 (s1), sales marketing 2 (s2), sales marketing 3 (s3), sales supervisor, marketing manager, and branch head. Career paths in the field of instructor training, namely: training instructor, head instructor, instructor manager, head of the HRD division, and HRD manager. Career paths as a teacher, namely: teachers, heads of workshops, heads of departments, vice principals, school principals, school supervisors, and heads of the education sector. In addition to the four fields of work and career paths, there are several other types of work, such as heavy equipment operator, and aircraft maintenance, few are self-employed in the automotive sector (car repair, car buying and selling, car rental business).*

**Keywords:** automotive engineering graduates, types of jobs in the automotive sector, careers in the automotive sector.

**Abstrak**

Penelitian ini bertujuan untuk mendeskripsikan jenis pekerjaan di bidang otomotif dan mendata pekerjaan yang dimasuki oleh lulusan departemen teknik otomotif. Penelitian ini merupakan jenis penelitian deskriptif kualitatif dan survei. Data yang digunakan berupa data kualitatif hasil wawancara, observasi lapangan, analisis dokumen, dan hasil survei. Sampel penelitian sebanyak 93 responden, 69 responden menggunakan kuesioner, dan 24 responden yang tersebar di 13 perusahaan dilakukan dengan teknik wawancara dan observasi. Hasil kajian menunjukkan bahwa terdapat beberapa jenis pekerjaan yang dapat dimasuki dan ditekuni serta dijadikan karir oleh lulusan, yang dikelompokkan menjadi empat bidang karir, yaitu: teknisi (mekanik), sales marketing, instruktur pelatihan, dan guru. Untuk berkarir di bidang mekanik, jalur karirnya adalah: mekanik, ketua regu mekanik, kepala mekanik, servis advisor, kepala bengkel, dan manajer servis. Jenjang karir sebagai sales marketing, yaitu: sales selama pelatihan, sales marketing 1 (s1), sales marketing 2 (s2), sales marketing 3 (s3), supervisor sales marketing, manajer marketing, dan kepala cabang. Jenjang karir di bidang instruktur pelatihan, yaitu: instruktur pelatihan, kepala instruktur, manajer instruktur, kepala divisi HRD, dan manajer HRD. Jenjang karir sebagai guru, yaitu: guru, kepala bengkel otomotif, ketua jurusan, wakil kepala sekolah, kepala sekolah, pengawas sekolah, dan kepala bidang pendidikan (kadis) di dinas pendidikan kabupaten/kota atau provinsi. Selain empat bidang pekerjaan dan jenjang karir tersebut, ada beberapa jenis pekerjaan lain yang juga dipilih dan dijadikan karir oleh lulusan departemen teknik otomotif, yaitu: analisis laboratorium PLTU, pengolahan air pabrik kertas, operator alat berat, perawatan pesawat, wirausaha di bidang otomotif (bengkel mobil, jual beli mobil, usaha penyewaaan mobil, dan lain-lain).

**Kata Kunci:** lulusan jurusan otomotif, jenis-jenis pekerjaan di bidang otomotif, karir di bidang otomotif

## **1. Introduction**

The growth of the automotive industry is a trend in the industrial field, one of the fastest-growing sectors in the world, because the demand for vehicles continues to increase from year to year. This triggers an increase in the need for labor in the automotive field and, of course, has an impact on the types of jobs and career paths available in it. The growth of the automotive industry is a trend in the industrial sector and one of the fastest-growing sectors in the world (Priyanto et al., 2021). According to data from Statista, in 2020, world car sales reached around 64.5 million units and are expected to grow. Intense global competition: the automotive industry is highly competitive, with many significant players vying to produce better and more innovative products. In order to compete, automotive companies need a qualified and capable workforce, so the types of jobs and career paths within them must be carefully considered (Statista, 2023).

Human resources, technology, and innovation are critical to the growth of the automotive industry. In addition, the development of electric vehicles, self-driving mobility, and vehicle connectivity are also the latest trends showing rapid growth (Forbes, 2021). The development of automotive technology in recent years and the automotive industry are progressing rapidly in terms of technology, such as electric cars, autonomous vehicles, and more sophisticated safety systems. This makes the types of jobs and career paths in the automotive field more diverse and demands more specialized and advanced skills. In addition, there are social and environmental challenges, such as the issue of exhaust emissions and the environmental impact of vehicle production. This has led to a demand for a workforce that can address these challenges and create more sustainable solutions, so the types of jobs and career paths in the automotive field must be adapted to these needs (Deloitte, 2021).

The automotive field includes the design, development, manufacture, and sale of motor vehicles and their servicing and maintenance. There are many automotive-related jobs, such as automotive engineer, automotive Technician, automotive designer, automotive production manager, automotive market analyst, and many more. A good educational background in engineering, such as mechanical engineering, electrical engineering, civil engineering, or industrial engineering, can help one to start a career in the automotive field. In addition, experience in production, manufacturing, and sales can also be helpful. In the automotive industry, technology is constantly evolving, and innovations are continuously being made. Therefore, jobs in the automotive field often require skills and knowledge that are constantly updated (Setyabudhi, 2020).

The research aims to describe the types of jobs in the automotive field and record the types of jobs that have been entered and pursued by graduates of the automotive engineering department, as well as know the stages of career paths that can and have been achieved by graduates from the automotive engineering department.

## **2. Literature Review**

### **2.1. Types of Jobs in Automotive**

A job is a detailed description of the tasks and responsibilities that a worker must perform in a job position (Tjahjadi & Uria, 2021). A job is a collection of tasks and responsibilities that a person given by an organization must perform (Tewal et al., 2017). The automotive field has a variety of job and career opportunities, including engineering, manufacturing, design, marketing, sales, and customer service. These positions can be available in various settings, such as an original equipment manufacturer (OEM), supplier, dealer, or service center.

Some typical jobs in the automotive field include mechanics, electricians, software engineers, quality control inspectors, production supervisors, sales managers, marketing specialists, customer service representatives, and technicians. The structure of jobs in the automotive field varies greatly and includes areas such as engineering, manufacturing, design, marketing, sales, and customer service. Some common positions in the automotive field include

- a. Mechanical Engineer: Responsible for designing, developing, and maintaining mechanical systems and components on vehicles;
- b. Electrical Engineer: Responsible for designing, developing, and maintaining vehicle electrical systems and components;
- c. Software Engineer: Responsible for designing, developing, and maintaining software on vehicles, such as engine control systems and infotainment systems;
- d. Automotive Technician: Responsible for performing maintenance and repairs on vehicles, including diagnostics, component replacement, and periodic maintenance;
- e. Production Supervisor: Responsible for overseeing and managing vehicle production at the factory;
- f. Sales Manager: Responsible for managing vehicle sales and achieving the company's sales targets;
- f. Sales Manager: Responsible for managing vehicle sales (Automotive Service Excellence, 2023).

## **2.2. Career paths and career development in the automotive field**

A career is a series of professional experiences that a person goes through during his or her working life. A career includes the jobs taken, the education and training obtained, and the achievements and experiences attained during working (Investopedia, 2020). A career is the pattern of life in work that an individual has throughout his or her life (Donald E. Super, 1990). A career is a person's experience in adopting certain behaviors in work or activities taken in life. (John L. Holland, 1997).

Career paths in the automotive field may vary depending on the company and the specialization chosen by the individual. However, here are some common career paths in the automotive field:

- a. Technician A technician is responsible for performing repairs and maintenance on vehicles, such as cars and trucks;
- b. Engineers in the automotive field design, develop, and repair vehicles;
- c. Production manager Production managers in the automotive field are responsible for overseeing the production of vehicles, ensuring that vehicles are produced with high quality, and ensuring that production targets are met (Herrity, 2021);
- d. Marketing managers in the automotive field are responsible for planning and executing marketing strategies for vehicles and ensuring that vehicles are well-promoted and sold successfully (Editorial Team, 2021).

The duties of an automotive engineer include improving engine performance, increasing fuel efficiency, and developing new vehicle technologies;

- b. Automotive R&D Manager: The automotive R&D manager is responsible for planning, organizing, and supervising all research and development activities in the automotive field. Duties include developing and evaluating new designs and technologies in vehicles and ensuring that the development complies with established quality standards (National, 2022);
- c. Automotive Consultant: An automotive consultant is a professional who advises automotive companies on improving their business. His duties include market analysis, strategy planning, and product development;
- d. Automotive Production Director: The automotive production director manages all production activities in the automotive plant. His duties include planning, organizing, and supervising all production activities and ensuring that vehicle production meets set quality standards (Agcas, 2022).

Career paths in the automotive field for automotive engineering education graduates are also quite diverse. Some career references that can be taken as a reference are as follows:

- a. Technical Service Engineer: As a technical service engineer, his job is to provide technical support to customers in repairing or maintaining vehicles. Graduates with a bachelor's degree in automotive

engineering education can become technical service engineers and are responsible for solving technical problems on vehicles or providing advice on vehicle maintenance; b. Quality Control Inspector: As a quality control inspector, the job is to ensure that the vehicles or automotive components meet the specified quality standards; c. Production Engineer: As a production engineer, his job is to ensure that the production of vehicles or automotive components runs smoothly and efficiently; d. Technical Writer: As a technical writer, the job is to write technical documents such as user manuals, repair guides, and technical specifications for automotive vehicles or components, e. Sales Engineer: As a sales engineer, your job is to promote and sell automotive products. Graduates with a bachelor's degree in automotive engineering with good communication and interpersonal skills can become sales engineers and help companies market their products (Zip Recruiter, 2022).

### 3. Research Methods

The data used are qualitative and quantitative, in the form of interview results, field observations, and document analysis supported by survey data. The research sample was 93 respondents, consisting of 69 respondents. The research data was obtained using a survey method by sending questionnaires to the research sample respondents, and 24 respondents were spread across 13 companies using interview and observation techniques and document analysis.

Graduate data collection is carried out using a tracer study questionnaire, namely: a. Tracer study of 2022 S1 graduates (graduates who are already working) with the filling link <https://forms.gle/34noSA5ygxVZHB939> b. Tracer study of 2022 S1 graduates (graduates who continue their studies) with the link <https://forms.gle/dR19sX4haqWSGyUU6>; c. Tracer study of 2022 S1 graduates (entrepreneurs) with the filling link <https://forms.gle/kftPRmewmgN8r1iE9>; and d. Tracer Study of 2022 S1 Graduates (Unemployed Graduates) Filling Link <https://forms.gle/QqwXHq3Tifci5n7N7> (Automotive Engineering, 2022). In addition, data is also used with the 2022 Tracer Study UPT PKK Padang State University, UNP Career & Entrepreneurship Development Technical Implementation Unit, <https://uptpkk.unp.ac.id/forms/site/login/pid/ts-new> (Padang State University, 2022).

### 4. Results and Discussion

The research data collected included 93 respondents, consisting of 69 respondents using the survey method by sending questionnaires and 24 respondents spread across 13 companies using interview and observation techniques. More details can be seen in Table 1.

**Table 1.** Employment type and career path data of Automotive Engineering department graduates

| No           | Types of jobs and career paths | Number of respondents (people) | Percentage (%) |
|--------------|--------------------------------|--------------------------------|----------------|
| 1            | Mechanic (Technician)          | 26                             | 27,96          |
| 2            | Marketing (sales)              | 12                             | 12,90          |
| 3            | Training Instructor            | 15                             | 16,13          |
| 4            | Teacher (Educator)             | 40                             | 43,01          |
| Total amount |                                | 93                             | 100            |

Based on Table 1, data on the types of jobs and career paths of graduates of the automotive engineering department, consisting of mechanics (technicians), Marketing (Sales), Training

instructors, and Teachers (Education), with a percentage of 27.96%, 12.90%, 16.13%, 43.01% respectively.

**Table 2.** Data on respondents' mechanical occupations and career paths

| No           | Types of jobs and career paths | Number of respondents (people) | Percentage (%) |
|--------------|--------------------------------|--------------------------------|----------------|
| 1            | Mechanic                       | 9                              | 34,62          |
| 2            | Mechanic squad leader          | 4                              | 15,38          |
| 3            | Chief mechanic                 | 3                              | 11,54          |
| 4            | Service Advisor                | 4                              | 15,38          |
| 5            | Head of the workshop           | 3                              | 11,54          |
| 6            | Service Manager                | 3                              | 11,54          |
| Total amount |                                | 26                             | 100            |

Referring to Table 2, for graduates from automotive engineering majors who choose and pursue work and a career in the field of mechanics, the career path they will go through, namely as a mechanic, head of a mechanic team, head mechanic, service advisor, workshop head, and service manager. Based on the results of research to pursue work and career paths as a mechanic to become a service manager of an automotive company takes a relatively long time, around 8-12 years, with details as a mechanic for two years, as a head of a mechanic squad for  $\pm 2$  years, as a service advisor for  $\pm 3-4$  years, as a workshop head for  $\pm 3-4$  years, then can become a service manager (Triono, 2023).

**Table 3.** Data on respondents' vehicle sales marketing jobs and career paths

| No           | Types of jobs and career paths  | Number of respondents (people) | Percentage (%) |
|--------------|---------------------------------|--------------------------------|----------------|
| 1            | Sales marketing during training | 2                              | 16,67          |
| 2            | Sales marketing 1 (s1)          | 2                              | 16,67          |
| 3            | Sales marketing 2 (s2)          | 4                              | 33,33          |
| 4            | Sales marketing 3 (s3)          | 2                              | 16,67          |
| 5            | Sales marketing supervisor      | 1                              | 8,33           |
| 6            | Marketing Manager               | 1                              | 8,33           |
| 7            | Branch head                     | 0                              | 0              |
| Total amount |                                 | 12                             | 100            |

Graduates of automotive engineering majors can also pursue jobs and careers in the field of car sales, as in Table 3 career paths in the field of sales, namely: sales marketing during training, sales marketing 1 (s1), sales marketing 2 (s2), sales marketing 3 (s3), sales marketing supervisor, marketing manager, and branch head.

Based on the results of research to pursue work and career paths in sales marketing to become a branch manager of an automotive company requires a relatively long time of about 8-10 years, with details, as sales marketing during training for  $\pm 4$  months, as sales marketing 1 (s1) for  $\pm 1$  year, as sales marketing 2 (s2) for  $\pm 2$  years, as sales marketing 3 (s3) for  $\pm 2$  years, as a sales

marketing supervisor for  $\pm 2$  years, as a marketing manager for  $\pm 2$  years, then can apply to become a branch manager (Pratama, 2023).

**Table. 4.** Data on respondents' training instructor occupations and career paths

| No           | Types of jobs and career paths                    | Number of respondents (people) | Percentage (%) |
|--------------|---|--------------------------------|----------------|
| 1            | Training Instructor                               | 7                              | 46,67          |
| 2            | Chief training instructor                         | 4                              | 26,67          |
| 3            | Training manager                                  | 1                              | 6,67           |
| 4            | Head of Human Resource Development (HRD) division | 2                              | 13,33          |
| 5            | Human Resources Manager                           | 1                              | 6,67           |
| Total amount |   | 15                             | 100            |

Jobs and career paths as automotive training instructors can be chosen and pursued and used as careers for graduates of automotive engineering majors, as in Table 4, with career paths as follows: training instructor, chief training instructor, training manager, head of the Human Resource Development (HRD) division, and HRD manager. Based on the results of research to pursue work and career paths as a training instructor to become an HRD manager of an automotive company takes a long time, around 8-12 years, with details as a training instructor  $\pm 2$  years as a chief training instructor for  $\pm 2$  years, as a training manager for  $\pm 3-4$  years, as head of the HRD division for  $\pm 3-4$  years, then it can be proposed to become an HRD manager (Febri Yestion, 2023).

Referring to Table 5, for graduates from automotive engineering majors who choose a job and career as a teacher (educator), the career path they will go through, namely as a teacher, head of an automotive workshop, head of department, deputy principal, principal, school supervisor, and head of education at the provincial or district or city education office. Based on the research results, pursuing work and career paths as a teacher to become a head of education takes a relatively long time, around 12-20 years of service. However, the research results show that not all teachers can reach the principal or head of education level. However, some succeed in becoming school supervisors, some become principals, and only a few can become education heads (Ritonga, 2022).

**Table. 5.** Data on respondents' teacher occupations (educators) and career paths

| No           | Types of jobs and career paths | Number of respondents (people) | Percentage (%) |
|--------------|--------------------------------|--------------------------------|----------------|
| 1            | Teacher                        | 14                             | 35,0           |
| 2            | Head of the workshop           | 4                              | 10,0           |
| 3            | Head of the department         | 3                              | 7,50           |
| 4            | Vice Principal                 | 4                              | 10,0           |
| 5            | Principal                      | 8                              | 20,0           |
| 6            | School supervisor              | 6                              | 15,0           |
| 7            | Head of Education              | 1                              | 2,50           |
| Total amount |                                | 40                             | 100            |

As one of the leading automotive companies in Indonesia, Toyota Astra Motor (TAM) provides various career paths in the automotive field. Here are some of the career paths at Toyota Astra Motor and their references: Production Engineer: As a production engineer at Toyota Astra Motor, your job is to oversee the vehicle production process and ensure that production runs smoothly, efficiently, and by the specified quality standards. Quality Control Engineer: As a quality control engineer, his job is to ensure that the vehicles produced by Toyota Astra Motor meet the specified quality standards. Sales Engineer: As a sales engineer at Toyota Astra Motor, his job is to promote and sell vehicles produced by the company to consumers. After-Sales Service Engineer: As an after-sales service engineer, he provides explanations about vehicle specifications (PT. Toyota Astra Motor, 2023).

Astra Daihatsu Motor provides various career options in the automotive field; here are some career paths at Astra Daihatsu Motor and references: Production Engineer: As a production engineer at Astra Daihatsu Motor, your job is to oversee the vehicle production process and ensure that production runs smoothly, efficiently, and by the specified quality standards. Quality Control Engineer: As a quality control engineer, your job is to ensure that the vehicles produced by Astra Daihatsu Motor meet the specified quality standards. Sales Engineer: As a sales engineer at Astra Daihatsu Motor, his job is to promote and sell vehicles produced by the company to consumers. After Sales Service Engineer: As an after-sales service engineer, he provides after-sales services to consumers, such as vehicle maintenance and vehicle repairs. Research and Development Engineer: As a research and development engineer, he conducts research and development to create new technologies and improve vehicle performance (PT. Astra Daihatsu Motor, 2023).

Astra Honda Motor (AHM) is an automotive company that produces Honda motorcycles in Indonesia and is a subsidiary of Astra International and Honda Motor Co., Ltd. Here are some career paths at Astra Honda Motor: Production Operator This career path is suitable for employees who have technical and production skills. The main task of this position is to produce Honda motorcycles with an efficient and high-quality production process. Quality Control This career path is suitable for employees with product quality control skills. The main task of this position is to ensure that the Honda motorcycles produced meet the specified quality standards. R&D Engineer This career path is suitable for employees who have skills in engineering and research. The main task of this position is to develop and improve Honda motorcycle products through research and technology development. Marketing This career path is suitable for employees who have skills in marketing and sales. The main task of this position is to promote and market Honda motorcycle products to consumers. Supply Chain This career path is suitable for employees with logistics and inventory skills. The main task of this position is to manage the supply chain and inventory of raw materials to produce Honda motorcycles (PT. Astra Honda Motor, 2023).

## **5. Conclusion**

Based on the results of the analysis and discussion, several types of jobs can be chosen and pursued and used as career paths by graduates of automotive engineering majors, which can be grouped into four career fields, namely: technicians (mechanics), *sales marketing* (sales), *training* instructors, and teachers. For careers in the field of mechanics, the career paths are mechanic, mechanic squad leader, head mechanic, service advisor, workshop head, and service manager. Career paths in sales are sales during training, *sales marketing* 1 (s1), *sales marketing* 2 (s2), *sales marketing* 3 (s3), *sales supervisor*, *marketing manager*, and branch head. Career paths in the field of training instructors, namely: training instructor, chief instructor, instructor manager, head of the HRD division, and HRD manager. Career paths as a teacher: teacher, head of automotive

workshop, head of department, vice principal, principal, school supervisor, and head of education in the district/city or provincial education office. In addition to the four fields of work and career paths, there are several other types of jobs, which are also chosen and used as careers by graduates from automotive engineering majors, such as PLTU coal laboratory *analysis*, paper mill *water treatment*, heavy equipment operators, aircraft maintenance, and not a few who are entrepreneurs in the automotive field (car repair, car buying and selling, car rental business, and others). This research underlines several types of jobs and career paths that can be chosen, entered, and pursued by graduates of the automotive engineering department, which can be used as a career path in their work.

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