

POSITIONS

In view of **current challenges** (whether human, environmental, technical or virtual), which are ever increasing in size and complexity, and **in a society undergoing profound change**, engineers have, now more than ever, a **major role to play**.

The most sought-after engineering profiles in 2018 (in no particular order)

✦ **Control engineer**

Control engineers design and manufacture systems for the automation of a factory, a sorting system, a company etc.

The level of specificity in the desired profile depends on the field of application and/or sector in question (chemistry, aeronautics, automotive, food etc.) as well as the employing organization (SMEs, engineering subcontracting companies, large companies and industries etc.).

Examples of positions available: robotics/mechatronics engineer; embedded systems engineer; instrumentation and control engineer; automation and industrial IT engineer, automation manager etc.

✦ **Production engineer**

The production engineer is the person in charge of a production workshop and/or a production line, and supervises one or several teams. This job involves monitoring and coordinating manufacturing processes and finding solutions to improve the productivity of the unit (in terms of costs, time schedules, standards and quality). Similar to other types of engineers (such as methods, quality, logistics and control engineers etc.), and as the name indicates, production engineers work in any structure that houses a production chain, across a variety of fields and/or sectors. Depending on the type and size of the employment structure, this type of work may also use the title of workshop manager, production/manufacturing supervisor/head, manufacturing engineer, [specific field] production engineer etc.

The most popular production engineering positions are usually specialized in industries such as aeronautics and aerospace, defense, transport, shipbuilding, automotive, electricity and electronics, information technology and digital, nuclear and energy, mechanical engineering, metallurgy, (petro)chemistry, biotechnologies/biomedical, food and pharmaceuticals.

They also work in the same fields in design offices or industrial engineering companies, external R&D companies etc.

✦ **Construction engineer**

The field of construction engineering can involve a large number of profiles or roles, according to the field of application and/or specialization concerned. There are construction/works engineers, and civil engineers like those specialized in BIM (building information modeling), sustainable buildings or smart buildings (new materials, energy storage), connected buildings and infrastructures (sensor development, online networks, etc.), smart cities etc.

Examples of positions available: BIM engineer, civil engineer, works manager (in any French government corps), energy research manager, HSSE (hygiene, safety, security and environment) engineer etc.

✦ **R&D engineer**

These engineers design and develop new products, services or processes for innovation projects within a certain structure.

The level of specificity in the desired profile depends again on the field of application and/or sector in question (chemistry, aeronautics, automotive, food, energy, environment etc.) as well as the employing structure (SMEs, engineering subcontracting companies, large companies and industries, public research centers, pharmaceutical laboratories etc.).

Again, R&D engineering offers a wide variety of positions, including applied research engineer, R&D project manager, design or research engineer, development engineer, [specific field] engineer, design engineer, modeling and simulation engineer, innovation engineer... Such positions are found most prominently in the IT, mechanics, electronics, energy, materials, AI, health, food, biomedical/biotechnology and cosmetics industries.

✦ **IT, telecom and web engineer** (information systems, project management, network and telecom maintenance or architecture, data, multimedia etc.)

"IT engineer" or "digital engineer" are rather generic terms that refer to a large number of professions that revolve around computers, tablets, smartphones and other connected devices.

Among the most sought-after profiles today are: AI engineer; knowledge engineer; data scientist/miner (big data engineer, data analyst, data journalist, data visualization, data protection etc.); AI integrator; designer and developer; machine learning researcher; social media manager; telecom and network engineer; cyber security/cyber defense manager; UX designer and many more.

✦ **Quality engineer**

Following a set of specifications, quality engineers define and organize quality control procedures within a production unit or company, ensuring that the final product complies with the most recent standards.

Also called quality managers, control and quality consultants etc., quality engineers, just like production or process and methods engineers, may find themselves within any structure with its own production line. Just as with other production-related engineering roles, the most popular quality engineer positions are found at large companies in the automotive, electronics, aeronautics, food, chemical, plastics and mechanical sectors etc.; and in SMEs, control laboratories and service companies specializing in the same fields of application.

✦ **Process, methods and industrialization engineer**

Also under the name of continuous improvement engineer; process design engineer; industrialization engineer; process engineer; project, design and methods engineer; etc., this job involves liaising between the design office and production teams. This type of engineer is involved in a product's design phase, through analyzing the different stages and means of production required for its manufacture, and examining areas for improvement, upgrading or compliance.

In a similar vein to production and quality engineers, process, methods and industrialization engineers may find themselves working in any structure that involves the operation of a production line, across a variety of fields (see fields listed above).

✦ **Mechanical and/or electronic engineer (design)**

Positions in mechanical and/or electronic engineering are also highly popular, and are usually found in large companies and industries, as well as design offices.

If it weren't for the work of mechanical and/or electronic engineers, we would have no satellites, robots, turbines, engines, gearboxes or landing gears; nor, in the case of the latter, navigation systems, cellphones or other electronic components. Using cutting-edge technology, these specialist engineers not only create new products, but also know how to organize their manufacture and improve their production methods.

There is a particular demand for such profiles among industries and large companies in automobiles, construction (shipbuilding, rail, aeronautics), energy, mechatronics, robotics, telecommunications etc.

‡ **Business/commercial engineer**

Business engineers—a.k.a. key account engineers, business managers, business developers, pre-sales engineers and so forth—specialize in sales and negotiation and occupy a twofold role. As a "high-end" salesperson, the business engineer acts as an intermediary between the technical side (i.e. the company) and the sales side (i.e. the client) of a product, a service etc., by proposing the most appropriate technical and commercially viable offer possible, after completing a detailed analysis of the client's (or potential target's) needs.

Managing a portfolio of prospects and clients, the business engineer defines a development strategy, prospects, studies prices, negotiates, drafts commercial proposals, and handles customer relations and post-sales follow-up etc. The technical dimension of this role is owed mainly to the working environment and the relatively "technological" nature of the product or service offered.

The most "technical" commercial engineering profiles are sought after by independent design offices, consulting companies, industrial engineering companies, or corporations (of all sizes) specializing in one or more fields such as automation, aeronautics, capital goods, industrial materials, automobiles, health, energy, IT or construction.

‡ **Financial engineer/analyst**

Also called a risk analyst (financial, credit, market, operational, accounting etc.), this expert in mathematical simulations and foresight specializes in banking, corporate finance and market finance.

Most often attached to the general or financial management department within a company, financial engineers supervise financial arrangements, by proposing financial instruments and products for optimizing the profitability of their clients' investments (i.e. investments of the employer or of the employer's clients).

Financial engineers often work in stock exchanges, network banks, corporate and investment banks/funds, credit institutions, or internally in traditional enterprises.

It is important to note that although the profession has evolved and competition has become more intense since the 2008 financial crisis, this "elite" sector continues to attract job hopefuls from the best universities in the world and there are still significant opportunities, particularly at the international level.

‡ **Risk management engineer**

Commonly known as a risk manager, this job involves helping an organization take controlled risks. To do so, at each stage of the company's activity, risk management engineers use statistical calculations to identify and evaluate risks (whether accidental or planned) and liabilities incurred, at the technological, industrial or financial level. They define, deploy and coordinate a risk management system and propose optimized solutions in order to guide managers in their strategic decisions.

Risk management-oriented engineering profiles can be found at large CAC 40 companies and mid-cap companies, specialized firms or even, while rare, at SMEs.

✦ **Actuary**

In a similar manner to financial engineers or risk managers, actuaries (a.k.a. statistical research managers, actuarial research consultants etc.), through their statistics expertise and their in-depth understanding of insurance, help ensure that a company's main budget remains balanced. In this regard, they work to anticipate financial risks. Actuaries are also involved in the technical design and pricing of products, all of which should be in compliance with prudential regulations. They may specialize in a certain type of product and the risk attached to it (life, property and transport, non-life, health etc.) or a particular sector of activity (products, reinsurance, asset/liability management etc.).

It should be noted that while most actuaries work in insurance (complementary insurance companies, brokerage firms, consulting firms etc.), their skills are becoming ever more relevant to professions in banks and financial institutions, particularly the "dual-skill" profiles of those who have done both actuarial and data science studies.

Spotlight on...

✦ **Jobs involving blockchain**

When we hear the word "blockchain", we initially think about its best-known application in the world of banking, bitcoin (virtual method of payment and exchange).

However, blockchain actually applies the principle of a distributed ledger, which enables, by way of a third party, the user to certify and guarantee and exchange or transaction, whatever they may be. This could therefore involve a unit of account such as an energy certificate, a certification etc. A wide variety of sectors like banking, energy, retail, transport or education may involve blockchain.

Demand is therefore growing for skills related to this field and also through numerous initiatives with the goal of testing blockchain's potential beyond its initial virtual currency format.

Different structures, from start-ups to major corporations, are recruiting blockchain experts with a diverse range of specialized profiles. Computer scientists with a background in coding or several programming languages; mathematicians with a passion for encryption and modeling; and experts who are experienced in creating and using large ledger systems distributed in production are all found working on blockchain. At large companies, teams of blockchain experts (with a solid skill base in software development, encryption and modeling) find themselves playing essential roles alongside engineers specialized in networking (infrastructure design and management), coding, UX design or security.

✦ **Engineer-manager**

In order to develop ever more innovative products, concepts or projects, engineers must possess significant technical skills and a sense of creativity. But, above all, they must remain constantly up to date with technological, technical and environmental developments in their chosen field.

As their career evolves and/or as the projects they have to manage become more significant, engineers find themselves required to delegate tasks and use managerial skills (interpersonal skills, communication, team management). In doing so, they can optimally manage the various people working under their responsibility and ensure the successful development of their product and project, in terms of costs, time schedules, labor etc.

Increasingly early on in an engineer's career, even right after graduation, we are seeing more recruiters looking for "hybrid" profiles, combining technical and managerial skills, and creative and commercial fiber. These are the profiles that ensure the best career prospects.

A few words from the pros...

✚ In general, "people who are open-minded, adaptable and able to work with foreign counterparts have the most sought-after and valued profiles, both in terms of salary and career progression," asserts Meredith Alaïs, Head of the Hays Industry and Engineering Division for Île-de-France².

The most important thing is to have a versatile skillset that will prevent you from getting stuck in one specific sector.

Engineers who are able to gain a complete overview of production will have a greater chance of moving into a managerial position.

There are many bridges between sectors that can give young engineers a broader vision of their profession. "You can go from heavy industry to mechanics, food to medicine or chemistry," explains Meredith Alaïs.

She also recommends that young graduates choose their first position according to their level of interest in the different assignments offered, instead of simply focusing on positions offered by major corporations.

✚ "Engineers play a key role in innovating and harnessing technology for applications that benefit society. They ensure that their creations are used for the common good and introduced into the market in a profitable manner," says François Lureau, President of the French Federation of Engineers and Scientists (IESF)³.

✚ "Engineers must deal for instance with issues regarding water, agriculture, population displacement and reoccupation of territory," illustrates Jean-Eric Aubert, Vice President of the 2100 Foundation, established under the aegis of the ParisTech Foundation⁴. "They must also take into account the digital revolution and its numerous implications, from education to cyber security. In general, engineers must be involved in major global development projects."

Sectors: the top three

✚ Digital and IT

The rapid, exponential development of the digital and IT market, along with the endless innovations that drive it, require the involvement of engineers to develop new tools and help ensure digital transition at companies that are also evolving, themselves.

Private structures, especially large companies, computer service companies or technology consulting companies, as well as a considerable number of public structures (Ministry of the Armed Forces, local government authorities etc.) are and will be particularly on the lookout for engineers specializing in cyber security, cyber defense, data and transaction protection, cloud computing, systems and networks, data science, big data, AI etc.

² Article: https://start.lesechos.fr/index.php/du_25.01.2018 - "Combien les jeunes ingénieurs vont-ils gagner en 2018 ?"

³ Article: <http://www.mondedesgrandesecoles.fr/ingenieur-metier-davenir-metier-lavenir/> "Ingénieur: un métier d'avenir, un métier qui fait l'avenir", June 23, 2017.

⁴ Idem note 1

✚ Construction

The construction and public works sector has displayed one of the biggest increases in hiring in the past few years and it is therefore normal that there is a growing need for engineering professions in this field.

Due to the development of digital technology and automation and the greater interest given to issues of the environment and sustainable development driven by the industry of the future, buildings are not being constructed like they used to be.

Showing great variety and requiring ever more versatility in terms of skillsets, the construction sector offers a wide array of engineering positions. In addition to "classic" construction and/or public works engineers, we are now also seeing an emergence of positions for engineers specializing in pricing studies, dual-skill engineer-manager positions, or even very targeted profiles with specializations required in electronics (e.g. for home automation), digital (e.g. for BIM) and environmental studies (e.g. for civil or thermal engineering).

✚ Industry

Recruitment is also on the rise in industry and engineers still have the pick of the draw across all sectors.

However, the most prominent new hires are found more specifically in sectors like metallurgy, the environment, energy (including nuclear), automotive, aeronautical, cosmetics, pharmaceuticals, transport and mobility, and weaponry.

Engineers recruited in these sectors may find themselves joining R&D teams or occupying positions more centered around production and quality control.

On a final note, sectors like banking/insurance or trade/marketing and communication are tending to focus increasingly nowadays on profiles that are somewhat distant from the core line of business, for example the profiles of multi-skilled engineers, combining the skills of expert managers and businesspeople.

Sources

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