Toyota Boshoku Corporation 2024 Summer Internship Theme List

No.	Assigned area	Theme	Details	Recommended skills, experience
1	**MARKETING & SALES**	***Sales & Marketing activity for New Global Customers***	・The intern will gain experience in Marketing and Sales Strategy Planning by getting involved in: ・The main tasks during the internship will involve: ① Marketing strategy -Gathering information about customers ② Strategy planning for sales activities -Summarize data & exchange opinions with other departments ③ Presentation of strategy and other materials to customers	・**Interest in Marketing & Sales** ・Office Excel, Word, PowerPoint
2	**CORPORATE PLANNING**	***Understanding of Corporate Venture Capital***	・The intern will have the chance to go on several business trips to major cities for tech scouting. ・The main tasks during the internship will involve: ① Research on startups ② Financial & Technical evaluation ③ Legal and IP due diligence ④ Creating materials and participation in the annual Investment Committee Meeting	・**Business evaluation skill** ・**Financial evaluation skill** ・Presentation skill ・Power point, Excel, Word skill ・Communication skill
3	**FPT PRODUCTS DEVELOPMENT (VEHICLE AIR FILTER)**	***Benchmarking the activity of Cabin Air Filter (CAF)***	・Conduct surveys & benchmarks of CAFs sold in each region to expand global sales of commercial CAFs. ・Learn about mechanical drawing and performance evaluation of CAF through benchmarking activity.	・**Experience with textiles, fluids, machinery**, etc. ・**Knowledge of Filtration theory**
4	**ELECTRIC UNIT COMPONENTS DEVELOPMENT**	***Development of materials for lithium-ion batteries***	・Through this experience, the intern will contribute to the: ① Development and evaluation of cathode electrodes for lithium-ion batteries ② Development and evaluation of electrolytes for lithium-ion batteries	・**Knowledge of lithium-ion battery materials** ・**Knowledge of organic, inorganic, electrochemistry**
5	**AUTOMOTIVE DOOR TRIM DESIGN**	***Future interior space study based on future market trend forecasts***	To achieve our goal of introducing a new futuristic way of using a vehicle, the intern will contribute to the study of new vehicle parts to enhance the interior space value based on market needs, surveys of other vehicles, etc.	・**Mechanical Engineering**
6	**AUTOMOTIVE INTERIOR & EXTERIOR- TRIM DESIGN**	***Explore What the Interior & Exterior Trim of Future BEVs Should Look Like (Battery Electric Vehicle)***	・To clarify the direction of TB interior & exterior development, benchmarking of BEVs will be conducted to search for the ideal interior & exterior in the future. ・Vehicle parts to benchmark: ①Floor (carpets and silencers), ②Deck (deck sides and boards), ③Upper (ceiling), ④Exterior (floor cover, motor cover, fender liner), ⑤Vehicle body structure ・Methods of benchmarking: ①Performance and structural comparison of pre-purchased parts ②Data collection using BMC website	・**Mechanical Engineering** ・**Material Engineering**
7	**AUTOMOTIVE INTERIOR & EXTERIOR-EXPERIMENTAL DEPARTMENT**	***Development of a Performance Prediction Method for the A-pillar Section in Head Impact Protection***	・Contribute to the development of a method to predict the shape to satisfy performance at the drawing stage prior to product creation. ・Clarification of correlation between head impact protection performance and A-pillar component shape	・**Material Engineering** ・Knowledge of **Statistics** ・**Python Programming** Ability
8	**AUTOMOTIVE INTERIOR & EXTERIOR-PRODUCTION ENGINEERING**	***Door trim decoration process: Development of a highly efficient heating method for TPO skin by introducing a new vacuum molding machine***	Our target is to introduce a new vacuum molding machine, and to develop a method for heating the TPO skin to be used in the new machine. ・The intern will contribute to the development of heating method that enables high-cycle, power-saving, and uniform heating.	・**Mechanical Engineering** ・**Knowledge of thermodynamics** ・**Material Engineering**
9	**INTERIOR & EXTERIOR ADVANCED DEVELOPMENT-LIGHTING DEVELOPMENT**	***Development of interior illumination control pattern***	Contribute to the development of indices and logic for designing lighting arrangements and patterns for vehicle interior illumination based on the psychological and physiological effects on occupants.	・Knowledge of **Ergonomics** (Vision, Cognition) ・**Electrical & Electronics Engineering** ・**Software engineering**
10	**INTERIOR & EXTERIOR ADVANCED DEVELOPMENT-BIOTECHNOLOGY DEVELOPMENT**	***Development of Automotive interior parts for Carbon Neutral / Circular economy***	Our goal is to increase the use of sustainable materials towards achieving carbon neutrality by 2050. Sustainable materials include not only recycled materials but also biomass-derived materials. However, there are challenges in mechanical properties and quality compared to conventional materials. ・The intern's main tasks will include: ① Procurement of sustainable materials and evaluate the materials/products□ ② Perform Mechanical property test ③ Evaluate performance test of molding products ④ Current situation analysis of pre-consumer recycle resin	・**Mechanical engineering** ・**Mechanics of materials** ・**Organic chemistry**, Statistical processing ・Basic knowledge of resin materials
11	**VEHICLE SEAT DESIGN**	***Development and design work for automotive seats that are globally deployed (a total of 9 countries)***	Based on changes in customer specifications, the intern will contribute to the development and design of seats that meet the performance and quality requirements of each country.	・**Mechanical engineering**
12	**GLOBAL VEHICLE SEAT DESIGN**	***Seat components proposal & study for EU Car Maker (Product development process study)***	To understand the product development process in Toyota Boshoku, the intern will take part in: ① Trend research for EU Car Maker (EU Trend, OEM's needs) ② Make proposals to customers based on understanding TB development components ③ Implement rough loading study of TB products (using CATIA)	・**Mechanical engineering** ・Knowledge of **Mechanical Design** ・Knowledge and operation of **CAD/CATIA**
13	**VEHICLE SEAT ADVANCED DEVELOPMENT-HUMAN-CENTERED THERMAL DEVELOPMENT**	***Development of seat heaters demanded in the era of EV vehicles***	・As the market demands the development of seat heaters that contribute to both comfort and energy efficiency, the intern can contribute to improving power consumption in BEV (Battery Electric Vehicle) heating systems. ① Verification of heat emission patterns in specific areas using seat heaters from competitor BMC and small-sized heaters ② Develop a new heater that achieves both comfort & energy efficiency based on verification results	・**Electrical & Electronics Engineering** ・Experience in **thermal physiology**
14	**VEHICLE SEAT ADVANCED DEVELOPMENT-DECORATIVE DEVELOPMENT**	***Vehicle seat cover decoration development***	In order to improve the styling design (additional value) of the vehicle seat cover, the intern's main tasks will include: ① Performing decorative development work such as structure study, manufacturing method study and product evaluation (i.e: piping, embroidery, illumination, etc.)	・Mechanical engineering ・Knowledge of Mechanical Design
15	**MATERIAL ENGINEERING DEVELOPMENT**	***Development of technology for predicting press formability of steel vehicle seats***	The purpose of prediction technology is optimization of material selection and shortened development period. We aim to improve the accuracy of forming simulations by constructing a forming limit strain theory from metal properties. For that, the intern will contribute to: ① Simulate the occurrence of cracks using the Forming Limit Diagram (FLD) of the metal plates ② Construct a high performing prediction technology, from the correlation between the physical, chemical, and structure condition of metal on FLD	・**Knowledge of metal material** ・**Materials Mechanics** ・**Inorganic material**
16	**VEHICLE PROTOTYPE PRODUCTION**	***Learning about actual production of Door trim and Headliner***	Through the internship, the intern will learn first hand about Toyota Boshoku's interior product manufacturing and Toyota Boshoku's MONOZUKURI concept. ① Door trim planning and parts procurement ② Involvement in projects from planning to parts arrangement for ceilings ③ Learn the fabrication process from door trim and ceiling components	・**Knowledge on vehicle interior parts** ・**Adhesion and Welding** knowledge ・**Machining and press work** knowledge
17	**VEHICLE INTERIOR SPACE PLANNING & DEVELOPMENT ①**	***Exploration of future vehicle interior space needs based on consumer research***	The intern will utilize consumer research to identify interior space needs for 2030, and create new value that will be required in the future (user interviews, concept testing, etc.). →Through the real voices of consumers, we will be able to find the hidden needs of customers in a time of major mobility changes	・**Designer like thinking** ・**User Interview** method knowledge ・**Concept evaluation** method knowledge
18	**VEHICLE INTERIOR SPACE PLANNING & DEVELOPMENT ②**	***Improvement of mobile app on motion sickness prevention***	A mobile application is being developed to assist drivers to drive in a way that prevents motion sickness. ・The intern will be in charge of: ① Improving the front-end of the app ② Improving the application to make it easier to use while identifying issues through user testing etc. ③ Collaboration with UX/UI designers if necessary	・**Computer Science** ・**Programming skill with Kotlin** ・**Front-end development of smartphone apps**
19	**TQM (Total Quality Management) PROMOTION**	***Operation of digital human resource development (statistics and big data utilization seminars) for DX promotion***	Through this internship the intern will learn about the digital transformation (DX), and about our digital human resource development education and operation. ・The intern will contribute to preparing the educational operation digital human resource development: 1) Statistics and multivariate analysis course 2) Python machine learning and AI course 3) Planning of educational materials with universities and IT companies (IBM Japan) 4)Teaching material creation process 5) Process of developing and holding education within the organization	(Preferred) ・Knowledge of mathematics and/or physics at a university level ・Experience in business and science ・Knowledge of statistics, machine learning, and AI in business and scientific fields