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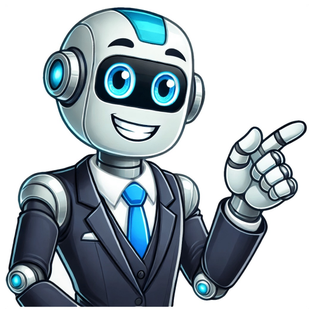

Look up mechanical in Wiktionary, the free dictionary. Mechanical may refer to: Machine (mechanical), a system of mechanisms that shape the actuator input to achieve a specific application of output forces and movement Mechanical calculator, a device used to perform the basic operations of arithmetic Mechanical energy, the sum of potential energy and kinetic energy Mechanical system, a system that manages the power of forces and movements to accomplish a task Mechanism (engineering), a portion of a mechanical device Mechanical (character), one of several characters in Shakespeare's A Midsummer Night's Dream A kind of typeface in the VOX-ATypI classification Machine, especially in opposition to an electronic item Mechanical Animals, the third full-length studio release by Marilyn Manson Manufactured or artificial, especially in opposition to a biological or natural component Automation, using machine decisions and processing instead of human Mechanization, using machine labor instead of human or animal labor Mechanical watch, utilizing a non-electric mechanism Mechanical engineering, a branch of engineering concerned with the application of physical mechanics HVAC (heating, ventilation, and air-conditioning), the mechanical systems of a building Mechanical phenomenon, as in the mechanics of the Digestive Tract or the mechanics of swallowing Mechanical license, used in the music industry to indicate the payment made from a licensee to the owner of a copyright for the right to mechanically reproduce a song Mechanic (disambiguation) Mechanism Mechanics Topics referred to by the same term This disambiguation page lists articles associated with the title Mechanical.If an internal link led you here, you may wish to change the link to point directly to the intended article. Retrieved from " A mechanical engineer applies principles of physics, mathematics, and material science to design, analyze, and manufacture mechanical systems and devices. These engineers are involved in a wide range of industries, including automotive, aerospace, energy, manufacturing, and robotics. Their primary focus is on creating efficient and reliable machines, equipment, and systems that serve various purposes, from power generation to consumer products. Mechanical engineers play an important role in the entire product development cycle, from concept design and prototyping to testing and production. They use computer-aided design (CAD) software to create detailed models, conduct simulations, and evaluate the performance and structural integrity of their designs. Additionally, they work in multidisciplinary teams to collaborate with professionals from other engineering disciplines to ensure seamless integration of mechanical components into larger systems. Duties and Responsibilities Mechanical engineers are essential in advancing technology and innovation by constantly improving and optimizing mechanical systems to meet the needs of modern society. Here is a comprehensive list of their key responsibilities: Designing Mechanical Systems: Mechanical engineers are responsible for creating and developing mechanical systems and products. This involves conceptualizing, modeling, and detailing designs for components or entire systems. Analyzing and Testing Designs: Mechanical engineers perform analytical and computational assessments of designs to ensure they meet functional requirements, safety standards, and regulatory guidelines. They may also conduct physical testing and prototype development. Project Management: Mechanical engineers often take on project management responsibilities, overseeing the entire product development lifecycle. This includes planning, scheduling, budgeting, and coordinating the efforts of a multidisciplinary team. Materials Selection: Engineers choose appropriate materials for the construction of mechanical components, considering factors such as strength, durability, and cost. They also evaluate the environmental impact of material choices. Thermal and Fluid Systems: In industries like HVAC, aerospace, and automotive, mechanical engineers design thermal and fluid systems. This involves optimizing heat transfer, fluid flow, and energy efficiency in systems like engines, cooling systems, and HVAC systems. CAD Modeling and Drafting: Proficiency in computer-aided design (CAD) software is essential for mechanical engineers. They use these tools to create 3D models and detailed drawings of mechanical components and assemblies. Manufacturing Support: Mechanical engineers work closely with manufacturing teams to ensure that designed products can be efficiently and cost-effectively produced. They may provide input on production processes, tooling, and quality control. Quality Assurance and Control: Ensuring the quality of manufactured products is a key responsibility. Mechanical engineers develop and implement quality control procedures, conduct inspections, and address any issues related to product quality. Research and Development: Mechanical engineers often engage in research and development activities to explore new technologies, materials, and methodologies. This can involve staying informed about industry trends and advancements. Regulatory Compliance: Mechanical engineers must be aware of and adhere to relevant industry standards, codes, and regulations. They ensure that designs and products comply with safety and environmental requirements. Collaboration and Communication: Effective communication is essential, as mechanical engineers collaborate with cross-functional teams, present design proposals, and provide updates on project progress. They may also communicate with clients, vendors, and regulatory authorities. Lifecycle Maintenance and Upgrades: After a product is in service, mechanical engineers may be involved in maintenance and upgrades. They assess performance, identify areas for improvement, and implement modifications to enhance product functionality. Types of Mechanical Engineers Mechanical engineering is a diverse field, and within it, there are various specialized areas or types of mechanical engineers. Some of the common types of mechanical engineers include: Automotive Engineer: Focuses on designing, developing, and improving automotive systems and components. This includes engines, transmissions, chassis, and vehicle dynamics. Aerospace Engineer: Works on the design, development, and testing of aircraft and spacecraft. Aerospace engineers are involved in propulsion systems, aerodynamics, materials, and structural design for aerospace applications. Biomechanical Engineer: Applies mechanical engineering principles to biological systems, working on the design of medical devices, prosthetics, and orthopedic implants. Control Engineer: Designs and implements control systems for mechanical systems, with applications in automation, robotics, and mechatronics. Energy Systems Engineer: Works on the design and optimization of energy systems, including renewable energy technologies, power generation, and energy storage solutions. Fluid Mechanics Engineer: Works on systems involving fluid dynamics, such as pumps, pipelines, and hydraulic systems, designing and analyzing fluid flow for various applications. HVAC (Heating, Ventilation, and Air Conditioning) Engineer: Specializes in designing HVAC systems for buildings, aiming to create comfortable and energy-efficient indoor environments. Manufacturing Engineer: Concentrates on optimizing manufacturing processes for efficient and cost-effective production. Tasks include process improvement, quality control, and production planning. Materials Engineer: Focuses on the selection and development of materials for various applications, working on improving material performance, durability, and sustainability. Mechanical Design Engineer: Focuses on designing mechanical components, systems, and products using CAD software to meet functional requirements and manufacturability. Mechatronics Engineer: Works on the development of robotic systems, automated manufacturing processes, and smart devices that combine mechanical components and electronic control systems. Nuclear Engineer: Focuses on the design and maintenance of nuclear systems, including nuclear power plants, working on reactor design, safety protocols, and radiation protection. Packaging Engineer: Designs and optimizes packaging materials and containers to protect products during transportation, storage, and distribution. Piping Engineer: Focuses on the design and layout of piping systems used in industrial plants, power plants, and other facilities, ensuring efficient and safe fluid transport. Robotics Engineer: Specializes in the design, development, and maintenance of robotic systems. Robotics engineers may work on industrial robots, autonomous vehicles, and robotic prosthetics. Structural Engineer: Concentrates on the design and analysis of structures to ensure they can withstand loads and environmental conditions. Structural engineers work on buildings, bridges, and infrastructure projects. Thermal and Fluids Engineer: Specializes in studying heat transfer, thermodynamics, and fluid mechanics to design systems such as thermal power plants, heat exchangers, and fluid control systems. Thermal Systems Engineer: Specializes in designing and analyzing thermal and energy systems, including HVAC systems, heat exchangers, and energy-efficient technologies. Mechanical engineers have distinct personalities. They tend to be investigative individuals, which means they're intellectual, introspective, and inquisitive. They are curious, methodical, rational, analytical, and logical. Some of them are also realistic, meaning they're independent, stable, persistent, genuine, practical, and thrifty. Does this sound like you? Take our free career test to find out if mechanical engineer is one of your top career matches. Take the free test now Learn more about the career test The workplace of a mechanical engineer can vary depending on the industry, company size, and specific job role. Mechanical engineers are employed across diverse sectors such as aerospace, automotive, energy, manufacturing, and consulting. In many cases, mechanical engineers work in office settings, where they spend a significant portion of their time using computer-aided design (CAD) software, conducting simulations, and performing calculations. This environment is conducive to tasks such as designing mechanical components, analyzing systems, and collaborating with team members to develop innovative solutions. The office space often includes workstations equipped with computers, engineering software, and communication tools necessary for project coordination. Beyond the office, mechanical engineers frequently engage in on-site work, particularly in industries like manufacturing, construction, and energy. On-site visits may involve overseeing the installation of mechanical systems, conducting inspections, and collaborating with technicians and other professionals. This hands-on aspect of the job allows mechanical engineers to ensure that their designs are implemented correctly and meet safety and quality standards. Laboratories and testing facilities are integral parts of the workplace for mechanical engineers involved in research and development or quality control. Here, engineers can conduct experiments, perform materials testing, and validate the performance of prototypes. These environments are equipped with specialized equipment and instrumentation to measure various parameters, ensuring that mechanical systems meet design specifications. For those employed in manufacturing, the workplace may extend to the shop floor or production facility. Mechanical engineers in this setting collaborate closely with production teams, addressing issues related to manufacturing processes, optimizing workflows, and troubleshooting any mechanical issues that arise during production. The shop floor may include machinery, assembly lines, and testing stations, where engineers can observe and refine manufacturing processes. Project sites, particularly for large-scale construction or infrastructure projects, are another facet of the mechanical engineer's workplace. Engineers may be required to visit construction sites to oversee the implementation of mechanical systems, assess progress, and address any challenges that arise during the construction phase. Automotive engineering and mechanical engineering are closely related fields, sharing fundamental principles but with distinct focuses and applications. Here's a detailed comparison: Automotive Engineer Specialization: Automotive engineers specialize in the design, development, and improvement of vehicles, including cars, trucks, motorcycles, and other types of transportation. System Integration: They focus on integrating various automotive systems such as engines, transmissions, suspension, braking, and electronics to create a functional and optimized vehicle. Automotive Industry: Automotive engineers primarily work within the automotive industry, employed by car manufacturers, suppliers, or research and development organizations dedicated to advancing vehicle technologies. Vehicle Design: Automotive engineers design and develop components and systems specific to vehicles, ensuring they meet safety standards, performance requirements, and environmental regulations. Testing and Validation: They conduct extensive testing and validation processes to ensure the reliability, safety, and efficiency of automotive systems. Automotive Systems: Automotive engineers have in-depth knowledge of automotive systems, powertrains, aerodynamics, vehicle dynamics, and vehicle safety. Automotive Engineering Roles: Career paths for automotive engineers include roles such as vehicle design engineer, powertrain engineer, safety engineer, or vehicle dynamics engineer within the automotive industry. Mechanical Engineer Generalization: Mechanical engineers have a broad scope and can work across various industries, not limited to automotive. They apply principles of physics and mathematics to design, analyze, and manufacture mechanical systems and devices. Diverse Applications: Mechanical engineering spans a wide range of applications, including energy systems, HVAC (heating, ventilation, and air conditioning), robotics, manufacturing, and more. Versatility: Mechanical engineers can work in diverse industries such as aerospace, energy, consumer electronics, manufacturing, and materials, among others. System Design: Mechanical engineers design, analyze, and optimize mechanical systems, including machines, tools, and devices. They may work on anything from consumer products to industrial machinery. Materials and Manufacturing: Mechanical engineers often deal with material selection, manufacturing processes, and quality control. Mechanical Systems: Mechanical engineers possess knowledge of mechanics, thermodynamics, materials science, and fluid dynamics, applicable to a wide range of mechanical systems. Versatile Career Paths: Mechanical engineers have diverse career paths, ranging from roles in product design and development to manufacturing, project management, and research and development. While there is some overlap in the foundational knowledge between automotive and mechanical engineers, the key difference lies in the specialization and application of that knowledge. Automotive engineers concentrate on vehicle-specific design and systems, whereas mechanical engineers have a broader scope, working on a variety of mechanical systems across different industries. Continue reading Automotive Engineer Below is a list of best universities in the United Kingdom ranked based on their research performance in Mechanical Engineering. A graph of 15.2M citations received by 518K academic papers made by 135 universities in the United Kingdom was used to calculate publications' ratings, which then were adjusted for release dates and added to final scores. We don't distinguish between undergraduate and graduate programs nor do we adjust for current majors offered. You can find information about granted degrees on a university page but always double-check with the university website. For Mechanical Engineering The best cities to study Mechanical Engineering in the United Kingdom based on the number of universities and their ranks are Cambridge, Oxford, London, and Manchester. Skip navigation Sponsored content UCAS Media Service Study optionsFull-time: 3 years, Part-time: 5 years minimum †UK fee£9,535 per year (2025/26)International fee£16,900 per year (2025/26)UCAS points112 (September 2025 entry)LocationMarkeaton Street, Derby CampusIf you do not achieve the typical entry points required, you may want to consider studying this course with foundation year → Why study Mechanical Engineering at Derby?The course is accredited by the Institution of Mechanical Engineers (IMechE)You'll benefit from our close links with world-famous companies like Rolls-Royce, Alstom and ToyotaSpecialist facilities include our additive manufacturing lab, wind tunnel and mechanical workshopChallenge yourself with exciting extra-curricular projects like the IMechE Railway ChallengeLearn from an expert team of academic staff with extensive industrial experienceYou have the option to transfer to another of our specialist engineering degrees after your first year Our Mechanical Engineering degree will give you the multi-disciplinary skills you'll need to succeed. And you'll have some amazing opportunities. Employers are increasingly looking for skilled engineers with a broader knowledge of mechanical and electrical engineering. So we have developed our degrees to match that flexibility. All engineering students take the same core modules in the first year to give you an essential engineering foundation. Then, at the end of your first year, you'll have the opportunity to switch your course. You can choose either our BEng (Hons) Electrical and Electronic Engineering or BEng (Hons) Motorsport Engineering degree should you realise your passion falls within this area. Or you can continue on our BEng (Hons) Mechanical Engineering. Top20for satisfaction with feedbackTop15for assessment and feedback100%of students agreed that staff made the subject engaging97%of students were satisfied with academic support95%of students were satisfied with teaching on the course You'll have access to excellent labs and facilities, including: Additive manufacturing lab with various 3D-print technology including fused-deposition modelling, stereolithography and polymer Manufacturing automation with programmable logic controllers, pneumatics and a smart factory Materials testing lab with a hardness testing machine and optical and digital microscopes that allow 3D image reconstruction and measurement Dynamic testing lab with fatigue and impact testing equipment Wind tunnel and thermodynamics where you'll test the aerodynamics of objects - and control and test the performance of our very own jet engine Mechanical workshop with traditional lathes and milling machines, plus more modern Computerised Numerical Control (CNC) equipment Makerspace where you can turn your ideas into a prototype We offer inspiring opportunities for you to take part in high-profile events such as: The British Model Flying Association Payload Challenge - competing against national and international teams to design, build and test a radio-controlled aircraft The IMechE Railway Challenge in collaboration with Alstom - in 2023 our students won five of the individual challenges, securing second place overall The Fantasy Wings programme - a course aimed at helping women and BAME people into the aviation industry Code: Please note that our modules are subject to change - we review the content of our courses regularly, making changes where necessary to improve your experience and graduate prospects.Whether it's computing, photography, or engineering, our top-tier facilities — including a new suite of recording studios and a £12 million STEM Centre — provide the perfect setting to excel.Discover your campusDiscover your campus During your studies, you will be assessed using a mixture of coursework assessment, examinations and professional presentations. Placement opportunities You can give yourself a real career advantage by choosing to spend a year on an optional industry placement. The industrial year takes place between the second and final stages of your degree and you will find there is a significant number of SMEs (small and medium-sized enterprises), large, national and international companies looking for placement students each year. We offer a full range of support to students who are keen to enhance their employability through internships and placements while studying. For more information, please get in touch with our Careers and Employment Service. Your teaching team The teaching team has a wide range of experience across a variety of sectors which they bring into their teaching and research. They include: Martin Sole: Martin has 30 years of experience in the aerospace and automotive sectors, having been a Service Engineer travelling throughout Europe, Mexico, India and Russia John Thorley: John has 25 years of experience in a variety of management and improvement roles in sectors including aerospace, food, power and automotive Dr Yiling Lu: Yiling carries out research in mechanical engineering with main applications in bio-engineering. He teaches on a range of modules including Computer Simulation and Engineering Design Dr Jianfei Xie: Jianfei teaches and has a research interest in the area of fluid dynamics, particularly in the aerodynamics and structures of aeroplanes Professor Zhiyin Yang: Zhiyin is a Professor of Aerospace Engineering at the University. He conducts world-leading research and has published over 100 scientific papers. His teaching covers Thermofluids advanced computational fluid dynamics Marzena is a lecturer in Mechanical Engineering. She completed her PhD in 2019 in Mechanical Engineering. View full staff profile → Engineering is a part of so many different industries, and completing an engineering degree will give you access to a wide range of careers. World-famous companies, including Rolls-Royce, Alstom and Toyota, are right on the University's doorstep. Our close links with these companies offer opportunities ranging from placements to extra-curricular activities. And as a BEng (Hons) Mechanical Engineering graduate, you will be ideally placed to make the most of many career opportunities in the city. This course prepares you for careers at the cutting edge of mechanical engineering design, motorsport or automotive design and the applications of advanced materials. You could move into roles in design, production or manufacturing in a variety of industries including aerospace, automotive and rail. You could also take your studies to postgraduate level with our MSc Mechanical and Manufacturing Engineering or MSc Strategic Engineering Management. These are the typical qualification requirements for September 2025 entry. Contextual offers may apply to students who meet certain criteria.RequirementWhat we're looking forUCAS points112A LevelBBC (At least a grade C in Mathematics or Physics (or equivalent qualification))T LevelT-Levels in either: Maintenance, Installation and Repair for Engineering and Manufacturing, Design and Development for Engineering and Manufacturing, Engineering, Manufacturing, Processing and ControlBTECDMM. BTEC National Diploma/Extended Diploma in Engineering, Motorsport or Physics, including a minimum of a Merit in the Maths unit.GCSEGCSE Maths and English Grade 4/Grade C (or above) or equivalent qualificationAccess to HEPass Access to HE Diploma with 60 credits: 45 at Level 3 with a minimum of Distinction: 15, Merit: 24, Pass: 6. Must include passes in compulsory Level 3 subjects.English language requirementsIELTS: 6.0 (with at least 5.5 in each skills area) Full-timePart-timeUK£9,535 per year£1,190 per 20 credit moduleInternational£16,900 per yearN/AFurther information about our fees and support you may be entitled to.Additional costs and optional extrasPlease look at our application deadlines before you apply.If you are in Year 13 and applying for a full-time undergraduate course (including our joint honours courses), we recommend that you apply through UCAS.If you are applying to study part-time, or already have your qualifications, or wish to join at Year 2 or 3, you should apply directly to the University.The quickest and easiest way to apply is through our online application portal.If you'd like support with your application, you can contact one of our trusted local representatives.If you're currently living in the UK and applying for a full-time undergraduate course, we recommend using UCAS.The option to study whilst in employment is available through day release, where you are allowed to attend classes on campus usually one day per week (depending on timetable which is subject to change). The duration of completing the course would be a minimum of 5 years assuming you are studying all three years of the course.Teaching hoursLike most universities, we operate extended teaching hours at the University of Derby, so contact time with your lecturers and tutors could be anytime between 9am and 9pm. Your timetable will usually be available on the website 24 hours after enrolment on to your course.Course updatesThe information provided on this page is correct at the time of publication but course content, costs and other individual course details do change from time to time and are updated as often as possible, so please do check these pages again when making your final decision to apply for a course. Any updated course details will also be confirmed to you at application, enrolment and in your offer letter.If you are thinking about transferring onto this course (into the second year for example), you should contact the programme leader for the relevant course information as modules may vary from those shown on this page. ArcMech2025-05-23T12:06:02+01:00We are delighted to have sponsored the University of Derby Cricket Team for the 2025 season. May your shots be powerful, your catches be strong, and your runs be fast! ArcMech2024-12-11T15:39:29+00:00Every year since 2021 Arc Mechanical and Electrical have given staff the opportunity to donate £250 to a charity of their choice, this has quickly become one of our favourite traditions. These are the charities that have been chosen this year, some being very close to all our hearts. We... ArcMech2024-10-16T11:41:16+01:00Works almost complete at Ian Marlow Centre in Leicester for valued client - Wilten Construction. This entailed 21 industrial units, with full electrical fit outs incorporating power, lighting, solar PV and surge protection. Mechanical and Plumbing consisted of WC facilities, hot and cold water and drainage. Overall a great project to be... ArcMech2024-01-26T11:47:07+00:00We're pleased to continue our ongoing sponsorship with Derbyshire County Cricket Club. Having carried out the maintenance at the Incora County Ground for nearly 10 years, we always look forward to some great summer nights and cricket action. Good luck for the 2024 season. ArcMech2023-12-18T10:52:45+00:00Arc Mechanical and Electrical have carried on tradition this year of letting all staff members choose their own charity to gift £250 for the holiday season, these are the eight charities involved this year. We're so happy to give back to charities that are not only important within themselves but... ArcMech2023-06-19T09:32:19+01:00Completion and PC has been achieved at the 47 Luxury apartment scheme in Matlock. The project for Clowes Developments Ltd, incorporates PV Energy , Whole house Ventilation and EV Vehicle charging. The apartments are in a great location with fantastic views over Riber Castle. ArcMech2023-02-23T15:58:38+00:00A great project to be involved with and our 10th car showroom / workshop with our valued customer - Davlyn construction. The Porsche showroom is due to open in April , with handover getting very close. The specification on this is of the highest quality, final finish update to follow very... ArcMech2023-01-23T08:22:52+00:00Early morning Daikin Chiller delivery to University of Derby - Chiller in position. Pipework and BMS panel next week, Look forward to seeing it working when it's a bit warmer !! Study Mechanical Engineering and you'll help to develop exciting technologies across different industries and learn many transferable skills along the way. Mechanical Engineering offers you the chance to explore different career options, from aerospace to robotics. Our rankings show the best Mechanical Engineering universities in the UK and include courses on Turbine Technology and Vibration. You can search for the top universities for Mechanical Engineering in the UK, using this Mechanical Engineering league table, and then filter the results by what factors you find most important. You can search by region, entry standards, student satisfaction, graduate prospects, and more to help you find the most ideal university and course. Study Mechanical Engineering and you'll help to develop exciting technologies across different industries and learn many transferable skills along the way. Mechanical Engineering offers you the chance to explore different career options, from aerospace to robotics. Our rankings show the best Mechanical Engineering universities in the UK and include courses on Turbine Technology and Vibration. 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You can search by region, entry standards, student satisfaction, graduate prospects, and more to help you find the most ideal university and course. University League Tables Performing Arts Tables Download league tables