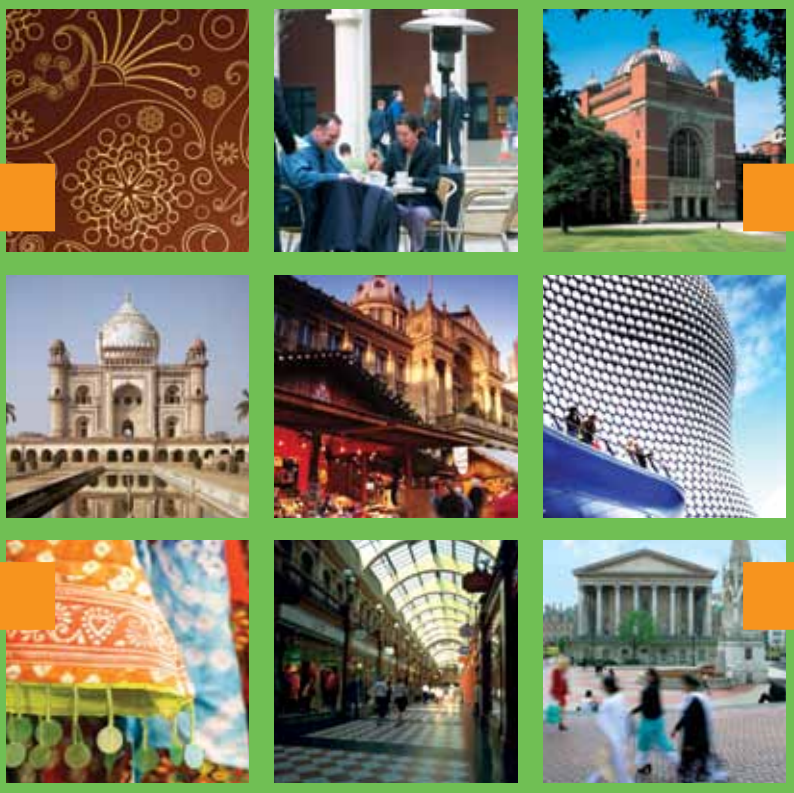
UNIVERSITY OF BIRMINGHAM



Birmingham and India

International Relations

Birmingham and India

For over a century, the University of Birmingham has been at the forefront of discovery, invention and design. We are proud to be recognised as one of the world's leading universities for the quality of our teaching and research.

Our research shapes lives and influences society on an international scale. Through major research projects tackling conflict, cancer research and healthy ageing, we are creating impact across the globe. In India we have several key research projects detailed in the coming pages.

Birmingham's connection with India spans more than a century, both at the University and in the region of which we are very proud to play an active part. We welcomed the first students from India to our campus in 1909 to study for degrees in Mining and Commerce. Since then we have provided education for more than 1000 Indian alumni, including high ranking government officials who studied Public Policy in our International Development Department.

The City of Birmingham, which is home to our historic campus, is also a major centre for India. Being the second largest Indian community in the UK, our city has strong industrial and business links with India. As a result, the advisory board at Birmingham Business School has several notable Indian business leaders amongst its members.

We are committed to further developing our relationship with India. To support this we opened our first representative office in New Delhi in 2009. From our permanent base we are able to strengthen connections with key institutions and research institutes, maintain partnerships with the private and public sector, provide local services to prospective students, and provide support to our alumni.

Professor David Eastwood
Vice-Chancellor

A Global University

- Birmingham is ranked in the top 100 universities worldwide by the QS World University Rankings
- Birmingham Business School is highly ranked in the global top 100 MBA rankings
- Of staff working at the University, 27% are from outside the UK
- There are almost 5,000 international students on campus from 150 different countries
- Birmingham is a founder member of Universitas 21, an international network of leading research-intensive universities, which includes the University of Delhi

1912 Mining Department

Building a lasting partnership: Birmingham and India

We are committed to building new partnerships and strengthening existing relationships with Indian higher education institutes, businesses and other public and private sector organisations in India.

The University of Birmingham has a strong and productive relationship with Indian institutions and businesses, where the strengths of both sides combine to create impact in research, innovation and education.

Collaborative research
There are many areas where the combined expertise of the University of Birmingham and Indian institutions and businesses has produced globally important research. Examples include collaboration with the Indian Institute of Science, Bangalore to understand ways to break down the protective cell wall of tuberculosis bacilli, and engagement with TERI University to develop sustainable cities.

With our comprehensive range of research interests, ranging from linguistics to medicine and from engineering to astrophysics, the University of Birmingham has much to offer, along with a progressive approach to exploring and developing new research opportunities.

Professional education and training
Our collaborations aren't limited to research. The University offers education and training to many Indian students, and is always looking to support the professional development of our partners' staff: since 1994, we have provided graduate programmes in public administration to Indian Government staff.

Recognising that there is considerable benefit in collaboration for education and training, we encourage Birmingham students to experience India, to take up internships in business and industry and to study at Indian universities; much as we seek to welcome Indian scholars and students to our beautiful campus.

The University also works with Indian institutions to provide specific training and collaborative teaching; for example, we work together with our U21 partners Delhi and Melbourne to deliver a joint module in Social Policy in India.

University of Birmingham India Office

The year 2009 marked the start of an exciting new dimension in the relationship between the University of Birmingham and India, with the opening of a representative office in the heart of the capital city, New Delhi – our first office of this kind anywhere in the world.

The office provides a permanent base for the University in India, which enables us to strengthen existing links and build new mutually beneficial partnerships with universities, businesses, government and other public and private sector organisations.

Staff from the University regularly visit India, and we support our colleagues in taking forward collaborations in both research and teaching. We also work closely with students interested in coming to study at the University who contact us for advice on programmes of study, applications, accommodation, visas and all other aspects of travelling to the UK and studying at the University of Birmingham.

The India team regularly visits various cities across India to meet with interested students and applicants. We also work closely with our alumni in India, keeping them connected with the University.

Our region

The University of Birmingham is situated in a region that was the birthplace of the Industrial Revolution and which today combines cutting-edge manufacturing with the cultural heritage of Shakespeare. As a transport hub of the UK with an enviable central location, Birmingham's international links are excellent.

Our city

The University of Birmingham is located in the second largest city in the UK, and one of the most culturally diverse. Our city's links with India are particularly strong, with a long-established community of Indian descent within the city, and with over 1,500 Indian nationals arriving to work in Birmingham each year.

Birmingham's industrial heritage is notable, and the city played a major role in the Industrial Revolution. Industry in Birmingham has continued to adapt and stay at the forefront of innovation and manufacturing technology. More recently, the city has also developed as a financial centre, a centre of research and development, and as one of the major conference venues in Europe. The University of Birmingham plays an important role in all of these fields.

Our region's industrial links with India are strong, with Birmingham being a favoured focus for investment from India, the stand-out example being Tata Motors' purchase of Jaguar Land Rover, one of the long-established West Midlands automotive manufacturers. Many businesses in the Birmingham area also have links to and investments in India; links are facilitated by the ease of transport to and from Birmingham through our international airport, only some fifteen minutes from the centre of Birmingham.

Beyond its industry and innovation, Birmingham is also a sporting and cultural hub. We have the test cricket ground at Edgbaston, premiership football, and world-class facilities for a vast number of sports; the city has regularly played host to Indian international sporting teams. Birmingham also hosts a range of cultural events, and has internationally-renowned orchestras and dance companies, as befits a vibrant and cosmopolitan city.

'The Midlands in general and Birmingham in particular has been identified as an important area of business interest. In both India and Britain, academia, research and business are connecting on an innovative plane. It is places like the University of Birmingham that are well equipped to incubate and implement such thinking.'

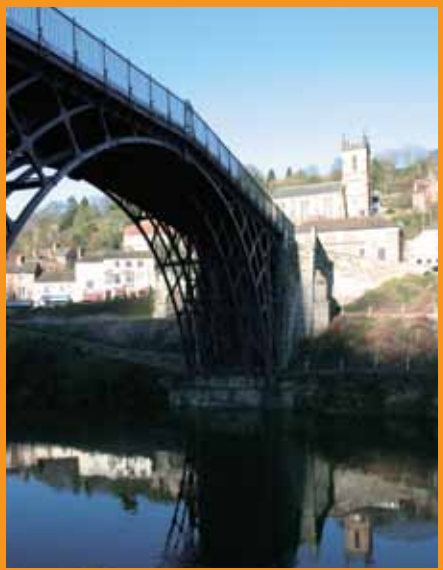
Supriya Banerji, Deputy Director General, Confederation of Indian Industry (CII)

Our region's heritage

The University of Birmingham is fortunate to be located in a region with great historical interest, being the birthplace of both the Industrial Revolution that created the modern industrialised world, and also of Shakespeare, the greatest of English language writers. Furthermore, the University is proud that we are able to build on our location through our continuing engagement with our heritage.

Our Ironbridge Institute, located in Shropshire, at the heart of the cradle of the Industrial Revolution, specialises in heritage management and industrial archaeology, and can take advantage of its location to document the entire history of modern industrial progress.

Our Shakespeare Institute, located in Shakespeare's birthplace of Stratford-upon-Avon, a short journey south of Birmingham, is internationally recognised as one of the leading centres of study into Shakespeare's life and works. Through its connections to the Royal Shakespeare Company and to the Shakespeare Birthplace Trust, the Centre can offer unrivalled access to a depth of Shakespearean knowledge and experience.



Our research

Birmingham is an internationally powerful research-led university: as well as our commitment to providing excellent teaching, our academic staff are engaged in a wide range of research projects that have created a major, positive impact across the globe.

At Birmingham we have a tradition of innovation. For more than a century, research from the University has had a major impact on the city, the region and the world. Our early research had a lasting impact on lives, culture, industry and society; our current research aspires to do the same.

In the 20th century we pioneered transplant surgery, the use of microwaves and created artificial Vitamin C. In the 21st century we continue to break new ground. From world-class research into cancer and global infection to the development of a new generation of fuels, alongside a Cultural Learning Hub and the Birmingham Policy Commissions, our academic expertise continues to address today's key national and global challenges.

Outlined here are just three examples of the world-class research that takes place at Birmingham:

Tackling cancer

Birmingham is an internationally renowned centre for translational cancer research and cancer education. Our work encompasses many aspects of cancer biology from basic laboratory science through to clinical trials on thousands of patients.

Birmingham's Cancer Research UK Clinical Trials Unit (CRCTU) is the largest cancer trials unit in the UK. It is responsible for the design, implementation and analysis of trials in most types of cancer and covers everything from the first test of new therapies, to large studies comparing the potential of recently established drugs. Birmingham is renowned for its work on immunotherapy, which looks at ways to use the body's natural immune responses in the fight against cancer.

Fuel research

The University has a keen interest in developing a new generation of cleaner conventional fuels, but also the technology required to create a hydrogen infrastructure. Birmingham has major research groups working on generating cleaner fossil fuels and nuclear engineering, as well as new fuel sources like hydrogen.

The University's Future Engines and Fuels Laboratory, in the Department of Mechanical Engineering, has developed unique research with support from industrial partners Jaguar, Land Rover, Ford, Johnson Matthey and Shell, to look into fuels of the future and new combustion technologies with a view to reducing harmful vehicle exhausts, and enhance security of energy supplies for transport.

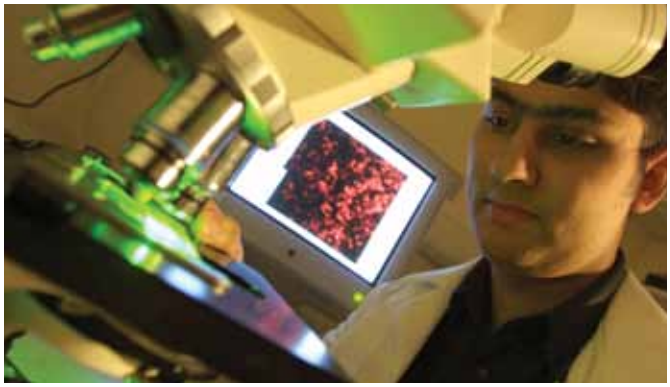
Professor Miroslaw Wyszynski is one of the research team: 'We are working with the automotive industry to create a new, more fuel efficient generation of engines. This focuses on a new combustion system which combines the diesel and gasoline engine technologies to achieve much improved fuel economy and reduced emissions for the next generation of automotive engines. Cars are still the dominant form of transport, so there are potentially massive environmental benefits from more efficient engine technology.'

Developing an invisibility cloak

Physicists from the University of Birmingham, with colleagues at Imperial College London and Technical University of Denmark, have demonstrated an 'invisibility cloak' that can hide a three-dimensional object. Dr Shuang Zhang, lead investigator from the School of Physics and Astronomy, says: 'This is a huge step forward as, for the first time, the cloaking area is rendered at a size that is big enough for the observer to 'see' the invisible object with the naked eye.'

Research collaborations in India

We have a diverse and increasing range of research collaborations in India, a small selection of which is highlighted here:



Beating tuberculosis one 'brick' at a time

Researchers from the University of Birmingham and the Indian Institute of Science (IISc) Bangalore have joined forces in a new research partnership focused on tackling tuberculosis. Once thought of as a waning disease, tuberculosis has become a global problem, due to the rise of drug resistant strains.

Through a series of introductory workshops, Birmingham and IISc determined that the relative research strengths of the two institutions allowed work together to address a problem that afflicts the world. Together, researchers are involved in deciphering how the 'bricks' of the cell wall of the tuberculosis bacillus are made.

By deciphering the processes that go into making the cell wall, they are potentially able to identify targets for new drugs against tuberculosis, and through understanding the interactions of the bacterium with its host, better understand the process of infection and develop new vaccines against the disease.

Working to help address autism in India

It is sometimes assumed that autistic children do not want to communicate, but this is far from the truth: given the correct tools and environment, autistic children will not only communicate, but will have something to say. In many cases, the tools and environment in question are provided by modern technology, which appears safe and engaging: as Karen Guldberg from the University's Autism Centre for Education and Research put it; 'Technology has the potential to enable learning in new and innovative ways to help motivate and support children'.

Dr Guldberg runs the world's first and largest blended e-learning programme for practitioners and carers who work with children and adults on the autistic spectrum, and is expanding this network to India, working with the charity Hope and Compassion, and with Khalsa College of Education, to develop world-class training programmes for Indian practitioners working with autism, designed for and delivered within India.

Computational research helps solve embarrassing bladder problems

It may not attract many headlines, but an overactive bladder is a common problem, experienced by increasing numbers of people, in both India and the UK, as life-expectancy increases in both countries.

Dr Keith Brain, Senior Lecturer in Neuropharmacology at the University of Birmingham, is seeking to address this neglected and embarrassing problem, through collaboration with the Indian Institute of Technology (IIT), Bombay. Dr Brain was aware that the existing drug treatments for overactive bladders do not work well enough, and to help devise a better treatment realised he needed to be able to replicate the bladder computationally.

Working in partnership with IIT Bombay, and drawing on their computational expertise to model body systems, together with the complimentary medical expertise at the University of Birmingham effective simulations of bladder activity have been produced. By combining the two institutions' expertise, more effective solutions to the common problem of incontinence are being developed.

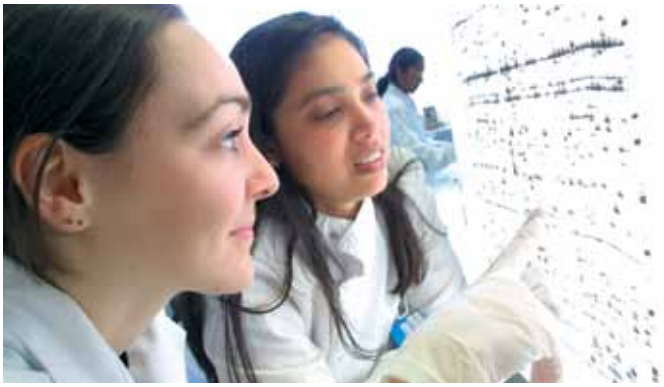
TERI University and the University of Birmingham

The relationship between TERI University, Delhi, and the University of Birmingham is based on a mutual appreciation of the other institution's strengths and abilities, which allows productive collaborative teaching and research.

The relationship was initialised in a series of workshops, held in both Delhi and Birmingham, where academics from the two institutions could meet and discover synergies in research interests. Since then, a number of collaborations have arisen, primarily in the fields of Civil Engineering, Sustainability and Environmental Sciences.

In particular, funding from the UK's Royal Society has facilitated studies into air quality, and an Engineering and Physical Sciences Research Council (EPSRC) grant to Birmingham for work into ground water in cities has been made possible by the support of TERI University.

TERI and Birmingham are working together to develop further collaborations and continue to make the relationship a beacon of effective cooperation.



Managing traffic on a global scale

The challenge of managing increasing volumes of traffic is one faced by every country on the planet, especially those undergoing rapid development. The Road Group in the School of Civil Engineering at the University of Birmingham has established collaboration with the College of Traffic Management in Delhi to work on ways to use engineering expertise to deal with the problems of dangerous driving and traffic jams.

By researching solutions using data and expertise from different countries, it is hoped that road safety in both India and the UK can be improved, and that potential delays to journeys can be minimised.

Through this collaboration with Birmingham's Road Group, the College of Traffic Management is further linked into a network of road research stretching from Switzerland to Papua New Guinea.

What Indian clothes can tell us about the European past

The way clothing is worn can tell us a lot about a society, particularly the less well-recorded members. Dr Mary Harlow, a scholar of the Roman Empire at Birmingham, recognised this important fact in her research. However, studying the way clothes were worn in Europe long ago can be difficult; there is however similarity between some contemporary Indian dress and Roman equivalents, particularly the use of draped clothing.

Modern India is in no way related to the ancient Roman Empire, but what Dr Harlow has been able to draw from Indian parallels is a far greater understanding of the production and use of draped clothing, and, reflecting the vibrancy of modern India, she has also been able to witness the evolution of clothing as different influences come to play; a useful analogy for the multicultural society. By studying modern India, Dr Harlow is able to shine more light on Europe's past.

Working together at the cutting edge of scientific knowledge

Today's theoretical science will form the basis of tomorrow's application of science. This is the core understanding of theoretical physicist and leader of the Birmingham Particle Physics Group Professor Paul Newman, who has a long-established collaboration with his counterpart at the University of Jammu, Professor Anju Bhasin. Together, they are exploring the fundamental particles which compose everything around us.

This collaboration, which includes both institutions working on experiments at the Large Hadron Collider at CERN, is particularly focused on understanding the conditions that existed immediately after the birth of the Universe.

Beyond conducting experiments, Professors Newman and Bhasin's passion for the beauty and mystery of science is such that they conduct outreach work from the University of Jammu, introducing Indian schoolchildren to the wonders of physics, and inspiring a new generation to consider researching the boundaries of scientific knowledge.

RESEARCHING WITH BUSINESS AND INDUSTRY

A key focus for the University of Birmingham in widening the reach and impact of its research strengths is in developing opportunities for research and knowledge transfer with business and industry in India. The University has notable research strengths in healthcare and medical technologies, engineering and transport technologies, and energy and environmental technologies and is actively looking at opportunities to engage with Indian businesses around their innovation needs in these areas.

The University can offer businesses and industrial concerns in India the following: collaborative or contract research opportunities; access to state-of-the-art equipment and facilities; analysis and testing; licensing of intellectual property and consultancy; sponsored studentships, and continuous professional development.

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