

THE INDIAN STATES (Volume 2)

Opportunities for International Higher Education Collaboration

Andhra Pradesh • Maharashtra • The National Capital Territory of Delhi •
Telangana • West Bengal

March 2016



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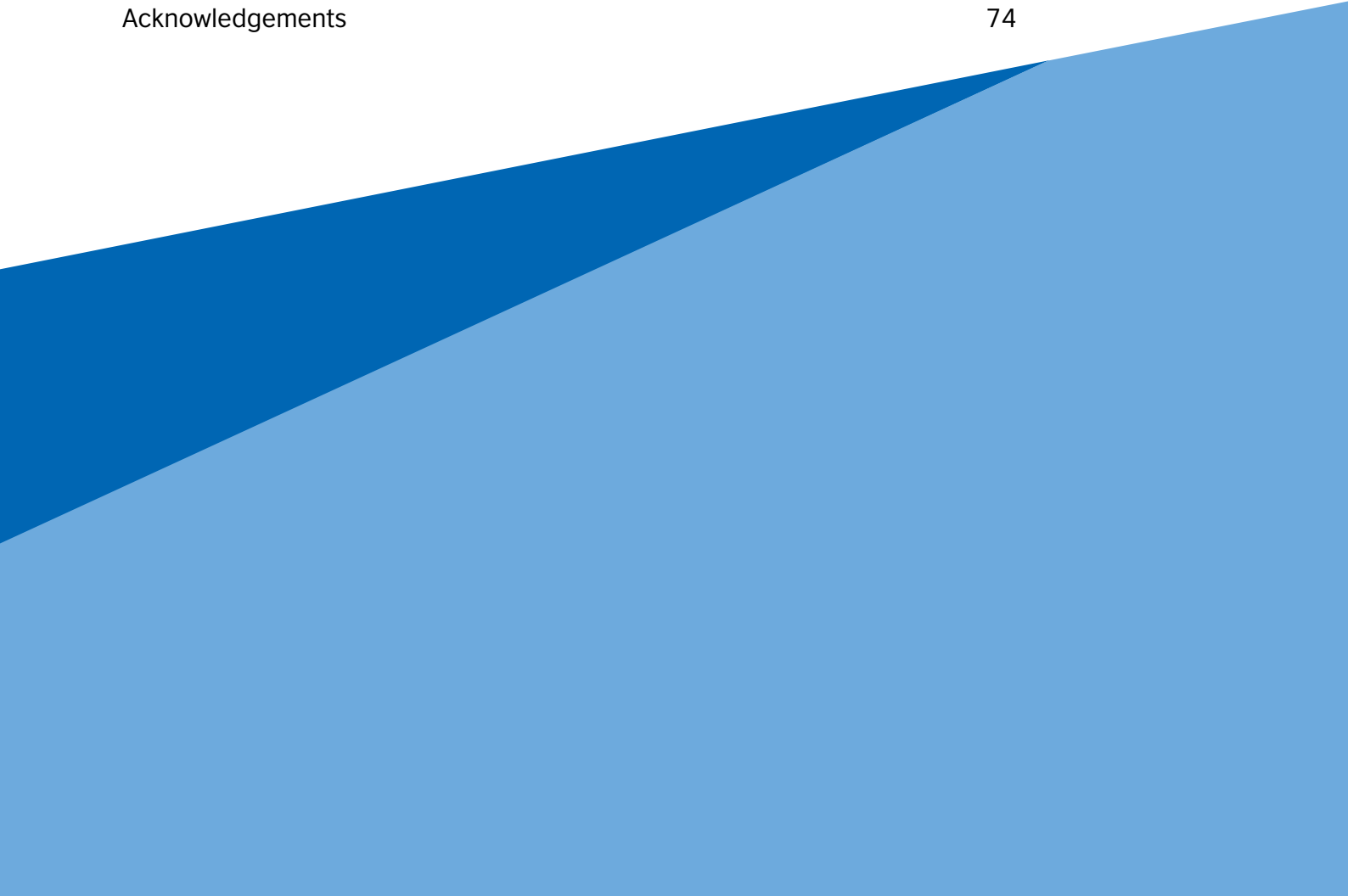
**The Indian States (Volume 2):
Opportunities for International Higher Education Collaboration 2016**

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CONTENTS

Foreword	4
Executive summary	5
Introduction	9
Opportunities for collaboration with states and institutions	
West Bengal	15
Andhra Pradesh	31
Telangana	41
Maharashtra	49
The National Capital Territory (NCT) of Delhi	61
Conclusion	70
Glossary	72
Acknowledgements	74



FOREWORD

The British Council has been promoting and supporting UK-India relations for over 60 years. This year has been announced as the UK-India Year of Education Research and Innovation by Prime Ministers David Cameron and Narendra Modi.

India is a complex and diverse country with decision making increasingly devolved to the 29 states, so an understanding at the state level is critical. This report follows on from our 2014 publication, *The Indian States*, which explored where opportunities for international collaboration existed in India, and took a focus on five priority states of India. This follow-on report takes a further deep dive into another five states – West Bengal, Andhra Pradesh, Telangana, Maharashtra, and the National Capital Territory (NCT) of Delhi,

with an in-depth analysis of over 40 higher education institutions (HEIs).

The findings show that the states in this report have developed strategies to bring about reform needed to strengthen their education sectors, and play a positive and facilitative role in internationalising higher education. The institutions investigated across these five states are proactive and have an appetite for pursuing international collaborations, which largely remains untapped. This 2016 year of education is a pivotal time for the UK to invest in building and strengthening academic collaborations with Indian higher education institutions, and to engage with state governments to bring systemic reform that supports the internationalisation agenda.

I hope you find this report useful. I hope it provides the necessary insight to deepen your understanding to enable further engagement with institutions in the Indian states.



A handwritten signature in black ink that reads "Rob Lynes".

Rob Lynes

Director, British Council India

EXECUTIVE SUMMARY

Devolution of authority for higher education in India began in 2013 and is now complete, with states enjoying greater autonomy to reform, govern and fund the sector. This change, which impacts over 93 per cent of higher education sector that comes under state control, has opened up new possibilities to engage with the Indian states that are playing an enabling and facilitating role in all aspects of the higher education, including internationalisation. Given the importance of the state higher education sector, this report is undertaken to inform and improve understanding of the higher education sector in five key states of India – West Bengal, Andhra Pradesh, Telangana, Maharashtra, and the NCT of Delhi, and of 43 higher education institutions in those states.

Key findings:

1. The higher education sector's potential to internationalise remains largely untapped in the five states and institutions covered in this report have a huge appetite to develop partnerships that involve international student and faculty mobility for teaching and research and to deepen collaborations with the UK. Finding the right Indian partner institution requires a deep understanding of the institutional culture, leadership, funding sources and appropriate partnership models which bring sustainable mutual benefits.
2. Key among the state reforms is legislation of private universities, which over time is expected to open up opportunities for foreign universities.
3. Different states have different priorities, ambitions and pace of reform and change, but all are actively engaging in the reform process to strengthen the sector and remain economically competitive. It was found that progressive states have stronger leadership at state and institutional levels which drives the reform process.
4. Employability and technology based education are high on the agenda for almost all states and higher education institutions; therefore, short modules and models of collaboration that address graduate skills gap are in high demand for international collaboration.
5. There is hope that the new education policy, when passed, will simplify regulatory framework, to facilitate future partnerships especially transnational partnerships.

Table 1: The Higher Education (HE) priorities and international collaboration opportunities for the five states

HE priorities for the state	International collaboration opportunities
<p>West Bengal</p> <ul style="list-style-type: none"> • Increase Gross Enrolment Ratio (GER) from 17.5 to 25.2 per cent by 2017 with inclusion of underprivileged classes • Improve pupil–teacher ratio • Significant jump in number of private universities in the state over past couple of years 	<ul style="list-style-type: none"> • Research and development are key priorities for international collaboration • Many reputed institutions wish to expand and deepen existing collaborations (e.g. Indian Institute of Technology (IIT), Kharagpur, Indian Institute of Engineering Science and Technology (IEST), Jadavpur University, Calcutta University and Presidency University) • Major areas of interest are student and faculty exchanges, research and innovation collaboration, joint PhD supervision and joint degree programmes • Public and private institutes are interested in overseas faculty spending two weeks or more to teach specialised topics
<p>Andhra Pradesh</p> <ul style="list-style-type: none"> • Aspires to be among the top three Indian states with the best higher education eco-system in terms of access, equity and quality by 2022 • Increase investment in higher education to 1.5 per cent of GSDP to achieve 40 per cent GER which is currently at 20 per cent • State’s share of R&D spending (national) to be at least ten per cent • Private investments in higher education to be at least 35 per cent of total expenditure on tertiary education • Establishment of new centres for promotion of sports, arts and humanities, research and development in science and technology • Introduction of new programmes and initiate and formalise new national and international partnerships 	<ul style="list-style-type: none"> • The state government has a focused internationalisation policy and strong leadership to drive the agenda. Priority areas include dual-degree and twinning programmes, communication and soft skills, engagement through MOOCs, student exchange programmes, faculty development and collaborative research, joint curriculum design, incubation centres • With seven new national institutions set up, opportunities for collaboration are expected to grow in the next 4-5 year period • The state is pro-actively inviting private and foreign players to set up institutions in AP

<p>Telangana</p> <ul style="list-style-type: none"> • Establish new HEIs to increase geographical spread to improve access, especially for marginalised communities • Introduce new demand driven courses • Improve quality standards to meet global standards • Skills for employability is high on the agenda 	<ul style="list-style-type: none"> • Telangana ranks fourth highest in attracting students from overseas • Hyderabad, the capital, has some excellent national institutions of repute • University of Hyderabad has been offering a successful Study India programme for over a decade and has a Technology Business Incubation Park for specialised research in life sciences, pharmaceutical sciences and Chemistry • IIT Hyderabad and Birla Institute of Technology and Science, Pilani Hydeabad are keen to recruit international faculty and foreign students in their masters programme • NALSAR University of Law in interested in UK partnerships • Acharya Ranga Agricultural University is interested in collaborations in agriculture, food science and technology
<p>Maharashtra</p> <ul style="list-style-type: none"> • Aiming for five per cent increase in GER by 2020 • Opening new colleges to improve access across the state • Focus is on building capacity and capability in research starting with UG programmes • Graduate employability is high on the agenda, so introducing vocational courses is important 	<ul style="list-style-type: none"> • Some of the top national institutions are in Mumbai like IIT Bombay, Indian Institute of Science Education and Research (IISER) Pune, Tata Institute of Social Sciences, Tata Institute of Fundamental Research etc. • Pune based HEIs attract a large number of international students, third highest among Indian states • Mumbai and Pune state universities are well reputed internationally • Collaborative research is a focus area in all of the national institutions and some of the state institutions
<p>National Capital Territory (NCT) of Delhi</p> <ul style="list-style-type: none"> • Skill development and employability are top priority areas of the government • Plans to set up a Science and Technology Park to house R&D Units of Indian and MNC Firms to serve as a Knowledge Hub in the NCT 	<ul style="list-style-type: none"> • Collaboration with central and state institutes working in niche areas such as agriculture, management and business, and traditional subject areas is a priority • Public universities such as Jamia Millia Islamia organise international summer school with students from at least 25 countries • Private universities such as O.P. Jindal and GD Goenka have been fostering global competencies among students via summer schools, semesters abroad and exchange programmes with leading foreign universities and recruiting foreign nationals as faculty members



Pharmacology

WARRIOR'S HUMAN PHYSIOLOGY
The Mechanisms of Body Function

PATHOLOGY
Muehlenberg / Reid / Callander

Human Physiology

Clinical MICROBIOLOGY

GENERAL AND SYSTEMATIC
PATHOLOGY

Liou

INTRODUCTION

Devolution of authority and responsibility for higher education reform passed from the centre to state governments in 2013, with some states embracing it fully and others at a slower pace. With 97 per cent of the higher education sector coming under state control this is a significant shift in funding and governance of higher education in India.

As states receive greater autonomy, fresh policies and opportunities have emerged for international collaboration. This led the British Council in 2014 to explore opportunities for international collaboration in five states (Gujarat, Karnataka, Tamilnadu, Odisha, and Punjab), and then again in early 2016 to look at a further five states of West Bengal, Andhra Pradesh, Telangana, Maharashtra, and the National Capital Territory of Delhi.

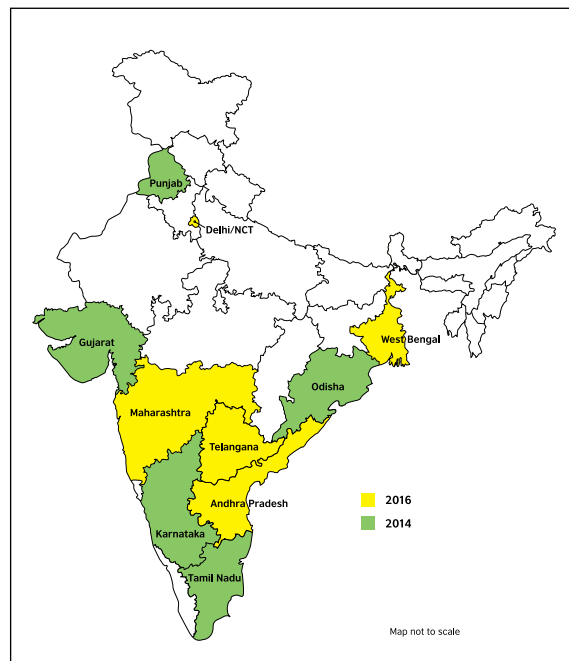
- Scale of the higher education system
- Maturity and quality
- Political climate
- Openness to reform and collaboration

Table 2: Priority states

States Showcased in Volume 1 (December 2014)	States Showcased in Volume 2 (March 2016)
Gujarat	West Bengal
Karnataka	Andhra Pradesh
Tamil Nadu	Telangana
Odisha	Maharashtra
Punjab	National Capital Territory of Delhi

The 2014 report *The Indian States: Opportunities for international higher education collaboration* is available at www.britishcouncil.in/sites/britishcouncil.in2/files/the_indian_states_-_opportunities_for_international_higher_education_collaboration.pdf and provides an overview of all 29 states and seven union territories, as well as an in-depth look at five of the potential states for international collaboration. In this second report, a further five states were identified based on the same criteria as in our previous report:

Figure 1: Outline map of India with states



The purpose of this research is to inform and advise the UK higher education sector about possibilities for potential engagement and collaboration with these additional five priority Indian states and 43 key higher education institutions. Engagement could be through support to the education reform processes, capacity building of faculty, joint research collaborations or joint partnerships for mutual benefit, which bring value to both sides. The map of the country below highlights the ten states considered in our two state reports.

Methodology

Information and data for this research was collected by British Council India staff working on Internationalising Higher Education through desk research, institutional surveys and face-to-face meetings with government officials and senior management at academic institutions. The report includes an overview of higher education in the five selected states, their vision, internationalisation agendas and plans, and potential engagement opportunities with overseas institutions. Additionally, the report also profiles 43 leading higher education institutes across these five states selected for their academic reputation, current international activities/ collaborations and future plans for internationalisation.

Selection of Institutions

In this report we included reputed public and private institutes, deemed, autonomous colleges/ universities, institutes of national importance and research institutes that have some form of existing international collaborations, or the potential to develop them. The sectors include science and engineering, agriculture, arts/culture and law/ management but not medicine. Reputation of institutions was determined by using public sources such as national and international rankings and on-the-ground knowledge of British Council staff.

New Education Policy

We find that the sector's potential remains largely untapped despite the role higher education plays in India's socio-economic growth and development. A New Education Policy is under development, with consultations taking place across the country. Though the release has been delayed, and the process somewhat opaque, it is expected that reforms and initiatives under formulation will have internationalisation high on the agenda with plans to develop and promote India as an international educational hub and destination for international students. Internationalisation of higher education is also driven by the need to accelerate the generation of new knowledge and improve the quality of education and

employability of Indian graduates. There is a move and intention on the part of government to simplify the regulatory framework to make it attractive for a flow of foreign investment to India and broader international engagement across the sector.

There are 20 themes covered under the New Education Policy:

- 1 Governance reforms for quality
- 2 Ranking of institutions and accreditations
- 3 Improving the quality of regulation
- 4 Pace setting roles of central institutions
- 5 Improving State public universities
- 6 Integrating skill development in higher education
- 7 Promoting open and distance learning and online courses
- 8 Opportunities for technology enabled learning
- 9 Addressing regional disparity
- 10 Bridging gender and social gaps
- 11 Linking higher education to society
- 12 Developing the best teachers
- 13 Sustaining student support systems
- 14 Promoting cultural integration through language
- 15 Meaningful partnership with the private sector
- 16 Financing higher education

- 17 Internationalisation of higher education
- 18 Engagement with industry to link education to employability
- 19 Promoting research and innovation
- 20 New knowledge

Funding of higher education

- As a percentage of the GDP, expenditure on education increased marginally from three per cent in 2009–10 to 3.1 per cent in 2014–15
- Though there has not been considerable change in budgetary allocation for higher education since 2013–14, the ratio of states to centre contribution has marginally increased, giving greater access and flexibility for states to use the resources based on their priorities

- Interestingly, it is generally agreed in principle in the government sector that academic considerations must take precedence over commercial interests.

New initiatives

- The University Grants Commission (UGC) introduced the Choice Based Credit System (CBCS), on the lines of the National Skills Qualification Framework, to allow greater flexibility and programme portability. This reform is expected to improve the quality of higher education, enhance employability and allow national and international student mobility
- The newly formed NITI (National Institution for Transforming India) Aayog is reviewing the policy framework for allowing

- foreign education providers to enter and operate in India. At the moment foreign providers can only operate in partnership with Indian universities after gaining the approval of the regulators. This opening up of the sector to foreign providers may take some time but is expected to improve quality and narrow the supply–demand gap
- The Prime Minister’s Office (PMO) is working with the Ministry of Commerce to work on mechanisms to promote Indian university campuses globally
 - The PMO and Confederation of Indian Industry (CII), created a platform of Global Exhibition on Services (GES), to showcase education as a major services that India will offer
 - The Ministry of External Affairs (MEA) set up the



South Asian University in Delhi and Nalanda University in Bihar to attract students from ASEAN region and Africa

- The Ministry of Overseas Indian Affairs and CII jointly set up the Overseas Indian Facilitation Centre (OIFC) and through it launched the India Internship Programme for Indian students studying in overseas universities. It facilitates paid internships of a minimum of two months in some of India's top companies such as Flipkart, Forbes Marshall, Thermax, Apollo Hospitals, Godrej and Boyce, Tata International, Wipro and Infosys
- As part of the Government of India's Digital India Initiative,

digital infrastructure such as high-speed internet connectivity is expected to have considerable bearing on the higher education sector in improving quality and providing access

- SWAYAM (Study Web of Active Learning for Young Aspiring Minds) is India's MOOC platform that offers an opportunity for international universities to jointly develop courses with Indian partners and deliver these with possibilities for certification
- A National Institutional Ranking Framework is being developed with support from MHRD to help students make informed choices for admissions. These rankings are expected to also help

international HEIs to identify appropriate Indian partners

- Some examples of state level initiatives are – i) Kerala state government's plans to establish an Academic City and International Higher Education Zones, and inviting investment on a public-private partnership mode to provide quality education at affordable costs, offering both international and domestic qualifications in partnership with universities and ii) Andhra Pradesh state government's plans to set up an "Education City" and introduction of "Smart Campuses" to promote collaboration with foreign universities and develop industry-academia collaborations.

**OPPORTUNITIES FOR
INTERNATIONAL COLLABORATION:
FIVE INDIAN STATES AND 43 HEIS**



WEST BENGAL

West Bengal is a key state with the highest number of HEIs in East India and home to some of the oldest and reputed HEIs in the country. The state has seen the largest expansion of its higher education system in its history with establishment of 13 new universities (six government aided, including one exclusively for women, universities and seven private universities) in the last three years.

Table 3: West Bengal demographic and economic overview

Parameter	Details
Population (2011)	91.3 million (4th most populous state in India) ¹
18-23 age group population	10.9 million ²
Gross State Domestic Product (GSDP) at constant price	West Bengal is the 6th largest state economy of the country with a GSDP of GBP 89.5 billion (US\$ 132.86 billion) in 2014–15. The state's GSDP expanded at a compound annual growth rate (CAGR) of 11.06 per cent from 2004–05 to 2014–15 ³
Scale and maturity of higher education system	<p>Total number of higher education institutes: 1,360. There is one central university, 25 state and state government-aided universities, seven private universities and 17 Institutions of National Importance including research institutes⁴.</p> <p>Total number of colleges: 1,311 (Government/Government aided/self-financing) provides general degree/engineering/technical education such as BEd, BPEd/Law/Management, MBA, MCA, etc.⁴</p> <p>Of the total colleges in the state, the top three specialisations are: i) General (64 per cent); ii) Education/teacher Education (12 per cent); and iii) Engineering and Technology (eight per cent)⁵</p> <p>Enrolment by level: PhD/M Phil – 0.3 per cent; PG/PG diploma – 9.68 per cent; and UG/UG diploma – 90.02 per cent²</p>
Quality metrics ²	<p>Gross Enrolment Ratio (GER) in higher education: 16.3 per cent (against national average of 23 per cent)</p> <p>Pupil–teacher ratio: 35:1 (against national average of 21:1 in all institutions at regular mode)</p> <p>Average enrolment per college: 1,487; and college per 100,000 population (18-23 years): 9 (against national average of 26)</p> <p>Three of the HEIs in West Bengal (Indian Institute of Technology, Kharagpur, University of Calcutta, and Jadavpur University) have been ranked by the <i>Times Higher Education</i> and Quacquarelli Symonds (QS) in recent years^{6,7}</p>

Key institutions in the state	Central: Indian Institute of Technology (IIT), Kharagpur, Indian Institute of Engineering, Science and Technology (IEST), Indian Institute of Science Education and Research (IISER), Kolkata, Indian Institute of Management (IIM), Kolkata, Indian Statistical Institute (ISI), Kolkata, Visva Bharati University State: Jadavpur University, Calcutta University, Presidency University
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The West Bengal Govt's immediate focus for higher education is expansion and equity followed by employability and quality, with some major targets and initiatives as follows⁴:

Access and equity

Targets:

- Increase GER of the State from current 17.5 (as per RUSA projection) to 25.2 by end of 2017
- 17 per cent reservation for Other Backward Class (OBC) students in higher education is to be achieved over a six-year period through creation of additional seats
- Increase GER for some districts with low female students, Schedule Cast (SC) and Schedule Tribe (ST)/economically deprived rural communities, women, and differently-abled persons.

Indicative initiatives:

- 13 new universities have been established in three years, 28 new Government General Degree Colleges and 14 Govt-aided colleges have been started, while two Government Engineering Colleges and one

Government-aided college are planned to start their academic activities from 2016–17.

Quality and excellence

Targets:

- Improve pupil-teacher ratio to 30:1 by 2017
- 73 per cent of colleges and universities to be accredited by 2017
- Introduction of choice-based credit system and semester system in all colleges and universities
- Enrich and enhance knowledge of the teachers in order to bring in excellence in pedagogy.

Indicative initiatives:

- Five bills have been passed in recent years to provide transparency, greater autonomy and accountability in selection of staff in colleges and universities, in conducting engineering and medical entrance tests, and in pursuing privatisation opportunities
- Financial support and workshops have been arranged in phases to guide

colleges in the accreditation process. West Bengal State Higher Education Council (WBSHEC) has been playing the lead role this year to help colleges and universities in preparing their self-study report, a mandatory requirement for National Assessment and Accreditation Council (NAAC) accreditation and for gaining funding from the University Grants Commission (UGC)

- The World Bank-funded Technical Education Quality Improvement Programme (TEQIP) in the state has significant focus on quality and employability as well as infrastructure improvement of both public and private technical institutes. In the last 11 years, at least 14 HEIs in the state have benefitted from this programme
- The government has been recruiting qualified faculties and administrators to balance the expansion and quality of teaching. Over the past two years, around 5,800 posts have been targeted, with almost half already recruited

- Through the West Bengal University for Teacher Training, Academic Planning and Administration Act, 2014, a university has been incorporated to promote teacher training in the state. West Bengal is the only state in the country except Tamilnadu to have such an initiative. 600 colleges providing education courses will now come under this umbrella authority and be affiliated to it
- Regular training of teachers and administrative personnel at Govt HEIs occurs in Academic Staff Colleges in the state.

Employability

Targets:

- Introduction of new vocational courses
- Training of more than 500,000 people in vocational education, and creation of 60 new polytechnic colleges and upgrading of existing colleges by 2017.

Indicative initiatives:

- Six community colleges have been established offering vocational courses approved by UGC in areas such as ICT, organic farming, food processing, automobile servicing, retail

management, IT, travel and tourism management, media management, and electrical and electronic equipment servicing.

Outbound student mobility:

Major overseas education consultants have offices in Kolkata to help outbound students from the state. The British Council and other agencies organise overseas education fairs in Kolkata and Shiliguri. Students prefer countries such as the USA, UK, Germany and Australia.

Inbound student mobility: As per 2010–11 enrolment, less than two per cent of total foreign



students in India selected West Bengal as their study destination⁸. Most of the students come from neighbouring countries in South East Asia and the Middle East with a limited number of students from Eastern European countries and Africa. A recent report by CII has ranked WB eighth among all Indian states in attracting students from overseas⁵.

International collaborations: West Bengal has long been known in the international higher education sector for its intellectual contribution, particularly in basic research. Several institutions from North America (US and Canada), the UK, Germany and Japan have tie-ups with institutions in the state. Most of these collaborations are at individual faculty level

and the number of institutional-level collaborations with foreign institutes is limited. Some of the institutional collaborations (indicative, not an exhaustive list) are given Table 4 below.

Seventeen higher education institutes in West Bengal were approached to provide information and, based on the responses, we have showcased 12 institutes below.

Table 4: International collaborations with West Bengal HEIs

Country	Collaborations
UK	IIT Kharagpur with Warwick Manufacturing Group, University of Warwick; student and faculty exchanges between IEST and Queen's University, Belfast; research collaboration with IISER's Earth Science department and University of Cambridge
US	Most HEIs have some collaboration or partnership with HEIs in the US for student or faculty exchange as well as research and innovation, including student exchange of Presidency University with Georgia State University; and IIM Kolkata with the University of Connecticut School of Business
Germany	Faculty and student exchanges between IISER and the University of Gottingen; Max Planck Institute; institutional partnership between IIT Kharagpur and Leibniz University, Hannover
Japan	Longstanding research, training and infrastructure collaborations between Japanese International Co-operative Agencies (JICA), Okayama University; and the National Institute of Cholera and Infectious Diseases (NICED), the WHO focal centre in diarrhoeal research at Kolkata; Collaboration on Indian Beam Line development at the High-Energy Accelerator Research Organisation (KEK) at Tsukuba with SINP
Australia	Joint research and teaching programmes between IIT Kharagpur and the University of Wollongong; Curtin University



Table 5: Profiled higher education institutes from West Bengal

No.	Institution	Year of establishment	Fields
Central/Institutes of National Importance			
1	Indian Institute of Technology (IIT) – Kharagpur	1950	Science and engineering, law, management, and medicine
2	Indian Statistical Institute (ISI) – Calcutta	1931	Statistics and related
3	Indian Institute of Management – Calcutta (IIM-C)	1961	Management
4	Indian Institute of Engineering Science and Technology (IEST)	1856	Science and engineering
5	Indian Institute of Science Education and Research (IISER) Kolkata	2006	Science
6	Saha Institute of Nuclear Physics (SINP)	1949	Science
7	Indian Institute of Chemical Biology (IICB)	1935	Science
State/Deemed Institutions			
8	Jadavpur University (JU)	1955	All faculties
9	Calcutta University (CU)	1857	All faculties
10	Presidency University (PU)	1817	All faculties
Private Institutions			
11	St Xavier’s College (SXC) – Autonomous – Government Aided	1860	All faculties
12	Globsyn Business School (GBS)	2002	Management

Indian Institute of Technology Kharagpur (IIT Kharagpur)

- IIT Kharagpur, established in 1951, is an Institute of National Importance. It is the first, the largest and most diverse among the globally reputed IITs of India
- Offers 16 undergraduate, 35 dual-degree, and 68 postgraduate and research programmes

- According to the QS World University ranking (2015), IIT Kharagpur is ranked 90th as an Engineering and Technology Institute and is in 69th position as per the *Times Higher Education Asia University Ranking, 2015*.

Current international and industry collaboration

- IIT Kharagpur has collaborations with international institutions from many countries such

as the USA, Germany, Australia and the UK. In the UK, it has associations with the University of Warwick, University of Southampton, University of Liverpool and the University of Birmingham. Collaborations take place in research project activities as well as in student and faculty exchanges

- IIT Kharagpur has strong relationships with Indian and multinational industries,

executes several industrial research and consultancy projects and has more than 25 R&D units

- The Institute sends students to industries for internships in India as well as abroad and also invites industry experts to participate in academic programmes
- IIT Kharagpur has established joint Doctoral research programmes with the universities of Wollongong and Curtin in Australia, and has a student exchange programme with the University of Warwick
- The institute offers short courses in niche areas of technology with international faculties.

Strategic imperatives and internationalisation strategy

- The vision of the Institute is to be among the top international science and technology-focused institutes with a culture of research excellence
- The Institute has taken up major research projects related to clean water, bio-energy, the environment, etc.
- Several participatory international programmes support internship cost and international travel for students and faculties
- The Dr BC Roy Institute of Medical Science and Research will include a 400-

bed research hospital and open new vistas for research and academics in Medical Technology Research.

Opportunities for partnership and partner selection criteria

- The Institute works proactively to maintain important international strategic alliances and forge sustainable relationships by inviting international faculty members
- The Institute has established joint PhD programmes with the universities of Wollongong and Curtin in Australia while a joint MTech programme is to be launched
- IIT Kharagpur is setting up a Research Park at Kolkata to foster high-quality technological innovation in collaboration with public and private sector industry and entrepreneurs
- Partners are selected based on their international reputation and their expertise in the area of collaboration. The institute prioritises student exchange, faculty exchange and development, visiting faculty and joint degrees while selecting partners.

Indian Statistical Institute (ISI)

- Established in 1931, ISI was designated as an Institution

of National Importance in 1959. With Kolkata as its head office, ISI has four other regional centres in Delhi, Bangalore, Chennai and Tezpur

- In 1950, ISI, in collaboration with the International Statistical Institute, UNESCO and the Government of India, set up the International Statistical Education Centre (ISEC) in Kolkata. The Centre offers various short-term courses in Statistics and related subjects
- It has 275 faculty, 880 staff and around 550 students.

Current international and industry collaboration

- The Institute has been very actively pursuing institution-level collaboration with a number of universities/academic institutions across the globe, namely Maastricht University, Netherlands (Joint PhD Programme), the London School of Economics, National University of Singapore and North Carolina State University
- It has faculty exchange programmes with the USA, Mexico, Italy and Canada
- The partnerships range from collaborative research to research grants for students/faculty as well as student/faculty exchange programmes.

Strategic imperatives and internationalisation strategy

- Research highlights include statistical profiling of arsenic poisoning data, palaeontology, germination of cryptology in India, statistical application of cosmology and astrophysics
- ISI Kolkata has recently introduced a PG Diploma in Business Analytics, has established the Centre for Soft Computing Research, RC Bose Centre for Cryptology and Security, and the Sampling and Official Statistics Unit
- The International Statistical Education Centre of ISI provides training in statistics to foreign students (about 15 to 20 students every year).

Opportunities for partnership and partner selection criteria

- ISI is active in research in the areas of statistics and official statistics including demography, economics including econometrics and game theory, various sub-disciplines of theoretical and applied computer science, operations research and mathematics
- Active collaborations with top-ranked academic as well as professional statistical bodies are sought
- ISI scientists already collaborate with leading British scientists on an

individual basis, and institutional partnership with relevant bodies will provide further impetus.

Indian Institute of Management Calcutta (IIMC)

- The Indian Institute of Management (IIMs) are a group of 19 public, autonomous institutes of management education and research in India, of which the Indian Institute of Management Calcutta was the first to be set up, in 1961
- The Institute provides PG and PhD programmes; student intake is around 1,100 and faculty capacity around 100
- It has one double-degree programme with ESCP Europe, under which two students from ESCP-Europe study for a year at IIM Calcutta
- As a member of the Global Alliance in Management Education (CEMS), IIMC also offers the CEMS Masters in International Management degree (MIM). IIMC is the only Indian member in the Global Alliance in Management Education (CEMS)
- Every year about 75 international students spend a term at the IIMC.

Current international and industry collaboration

- IIMC has collaborative agreements with more than 80 partner institutions across the world
- Areas of collaboration include student and faculty exchange, executive training programme, exchange of academic information and materials, organising joint research programmes and conferences and other academic exchanges
- IIMC has student exchange programmes with countries in Europe, the Americas and Asia Pacific
- Faculty from foreign institutions come to IIMC for joint collaborative research and teaching
- The Federation of Indian Chamber of Commerce and Industry (FICCI), National Entrepreneurship Network and TATA Group are the partners of IIMC's Centre for Entrepreneurship and Innovation. IIM Calcutta Innovation Park (IIMCIP) promotes entrepreneurship and creates a nurturing eco-system for budding entrepreneurs.

Strategic imperatives and internationalisation strategy

- Its focus now is on increasing its research output and improving programme offerings

- The Institute has recently started a new two-year programme called the Postgraduate Diploma in Business Analytics in collaboration with ISI Kolkata and IIT Kharagpur
- Internationalisation is a core area of focus in IIMC overall strategy – 125 students go for exchange to partner schools every year and 75 foreign students visit IIMC
- Partner institutes and research funding agencies fund faculty exchanges and research.

Opportunities for partnership and partner selection criteria

- The Institute has invested in its campus infrastructure to increase student intake.
- The Institute is looking to develop more international partnerships, with research and innovation the priority followed by faculty/student exchange and curriculum development
- IIMC looks for globally renowned institutions with high international ranking and accreditation from one of the top three agencies.

Indian Institute of Engineering Science and Technology (IIST)

- Established in 1856 as Bengal Engineering College

and later rechristened as IIST

- it offers integrated dual-degree, UG, ME/MTech, PhD programmes, an MBA and an MSc programme; under the Direct Admission of Students Abroad (DASA) scheme foreign national students are enrolled as well
- Total student strength of 3,500 and total faculty members 278.

Current international and industry collaboration

- IIST has international collaborations in North America and the UK, France and Germany
- Student and faculty exchanges are with Queen's University, Belfast, University of Windsor, Ontario, Canada, University of Pennsylvania and others
- Sponsored research and consultancy projects are pursued with about 60 industries/corporates/organisations in India in areas of solar energy, VLSI, steel technology, electronics, water technology, mechanics, structural engineering, nano-technology, biomedical engineering, sensor technology and power technology.

Strategic imperatives and internationalisation strategy

- To provide a learning environment and

opportunities for a diverse student population to achieve a high-quality, global educational experience, to engage in scholarly research and creative activities, and to offer meaningful public service to the community, the state, the nation, and the world so that the graduates are competent, socially informed, ethically upright and productive global citizens.

Opportunities for partnership and partner selection criteria

- The institute has members of adjunct/visiting/emeritus/professors from many countries, namely the USA, Britain, Germany and Canada, under the Global Initiative for Academic Networks (GIAN) and other schemes
- IIST is keen to collaborate with universities in the UK for faculty exchange, student exchange and collaborative research programmes.

Indian Institute of Science Education and Research (IISER Kolkata)

- Established in 2006, IISER Kolkata is an Institution of National Importance
- IISER Kolkata has a total strength of 1,059 students (2014–15) with 70 per cent of students from outside the state. Full-time faculty strength is 84

- The Institute offers BS-MS, MS by Research, Integrated PhDs and PhDs in the areas of biological, chemical and earth sciences, physical sciences, mathematics and statistics.

Current international and industry collaboration

- IISER Kolkata has established more than five mutual partnerships with various international institutes/universities involving exchange of faculty and students
- Faculty exchange and research innovation collaborations have been operational with the USA, UK, Austria, Germany, Israel, Russia and Japan
- The Institute's Earth Science department has multiple projects with the University of Cambridge UK, and one DST-UKIERI project from the Department of Chemical Sciences. There are two DBT-Wellcome Trust projects and one DBT-ICT Energy Bio-Science Overseas Fellowship.

Strategic imperatives and internationalisation strategy

- IISER Kolkata is promoting theme-based quality research in areas of importance/societal relevance and encouraging integration with education programmes
- The Institute is also

establishing an Incubation Cell with active collaboration from industry

- Enhancement of student intake and external research grants and patent applications
- Looking to attract reputed international faculty through GoI programmes such as Global Initiative of Academic Networks (GIAN)
- MoUs with some of the best universities of the world.

Opportunities for partnership and partner selection criteria

- Looking for research–innovation partnerships, in particular cutting-edge research with an interdisciplinary approach
- Synergy in education and research activities of an individual institute plays a greater role in selecting the partner. Preferred countries have been the UK, USA, Germany and Japan.

Saha Institute of Nuclear Physics (SINP)

- Founded in 1949, SINP is one of the oldest and most globally renowned basic scientific research institutes, particularly in the area of nuclear physics. In recent years its scientists have made significant contributions to the

development of the Compact Muon Solenoid (CMS) experiments at CERN, the European Organisation for Nuclear Research, Geneva on Higgs Boson particle research

- Has 96 faculties and 200 research students and associates across five broad subject areas: (a) Experimental Nuclear and Particle Physics, (b) Condensed Matter Physics including Surface Physics and Nano-science, (c) Biophysical science including chemistry, (d) Theoretical and Astroparticle Physics, and (e) Plasma Physics
- Courses offered are one-year Postgraduate MSc followed by PhD and post-doctoral research. SINP has also been making efforts in research–education linkages towards identifying and nurturing young talent in science
- Altogether, 446 research publications were credited during the period April 2014 to March 2015, with 30 theses awarded for PhD degrees. More than 70 publications are in high-impact journals with impact factor ≥ 6.0 .

Current international and industry collaboration

- Recognised for the successful operation of the Indian Beam Line at the

High-Energy Accelerator Research Organisation (KEK) at Tsukuba

- Collaboration with CERN, the European Organisation for Nuclear Research, at Geneva in A Large Ion Collider Experiment (ALICE) and Compact Muon Solenoid (CMS) experiment
- Association with SNOLab, Canada in PICASSO experiment. (Dark Matter Search experiment in Astroparticle Physics)
- Association with PETRA-III for synchrotron x-ray scattering in Germany with the support of NanoMission.

Strategic imperatives and internationalisation strategy

- Different outreach programmes have been conducted from the Centre

for Advanced Research and Education (CARE)

- Exploring access of international funding and facility such as ISIS Lab of Rutherford Appleton Laboratory in the UK for high-end physical and biological experiments.

Opportunities for partnership and partner selection criteria

- Would like to expand joint research programme including joint PhD programme
- Interested to explore collaborative summer schools in streams of physics and biophysics
- Preferred countries for international collaboration would be the USA, UK and Germany.

Indian Institute of Chemical Biology (IICB)

- Established in 1935, it has a focus on technology development with around 51 faculties and 300 research students and associates across six divisions: (a) cancer biology and inflammatory disorder, (b) cell Biology and physiology, (c) organic and medicinal chemistry, (d) infectious disease and immunology, (e) molecular genetics, and (f) structural biology and bioinformatics
- It has 60 per cent of students from West Bengal, 39 per cent from outside the state and one per cent from abroad.

Current international and industry collaboration

- IICB scientists have collaborative research projects with other national laboratories



- Under multiple bilateral programmes students and faculties have been visiting partner institutes in other countries
- Scientists have been developing vaccines for infectious disease, herbal products, drug candidates for controlling gastric ulcer, asthma, cancer, etc, and diagnostic kits for diseases. A notable example is the Leishmaniasis vaccine development
- IICB has collaborations with multiple national and international biotech-pharma companies.

Strategic imperatives and internationalisation strategy

- Engaged in research collaborations with international research institutes and encourages participation in conferences to showcase research
- Patenting and commercialisation of technologies in foreign countries.

Opportunities for partnership and partner selection criteria

- IICB prioritises research and innovation in cell biology and physiology, organic and medicinal chemistry, infectious disease and immunology, molecular genetics, structural biology and bioinformatics
- Research collaboration and

technology development with research labs and industry abroad.

Jadavpur University (JU)

- JU was ranked 47th in the *Times Higher Education*-Thomson Reuters list of the 100 best universities in the BRICS and Emerging Economies, 2013, while National Assessment and Accreditation Council (NAAC) 2014 assessment awarded a score of 3.68 on a scale of 4 with Grade A
- Awards UG, PG, MPhil and PhD degrees in science, arts, engineering and technology and interdisciplinary studies
- Of the 10,526 students, 0.4 per cent are international students; the faculty strength is 663
- The Research Councils UK (RCUK) names several departments and schools among leading centres of research in the country
- It is an internationally acclaimed university for its association with various international funds while the National Endowment for Science, Technology and the Arts (NESTA) ranked JU as a leading research institution in 2012.

Current international and industry collaboration

- In 2014–15, JU had student

and faculty exchange partnerships with institutes in the USA, Germany, Italy, UK, Japan, Sweden, Canada and Hungary, employability-related live projects, internships with the USA, China and other international institutes

- Under the UKIERI-UGC-DST Thematic Partnership (MHRD–British Council) Project, JU has been collaborating with multiple UK universities
- An MOU has been signed with Virginia Polytechnic Institute and State University, popularly known as Virginia Tech, USA, for a dual doctoral programme
- The School of Natural Product Studies has been working with the trilateral co-operation project under the India-Brazil-South Africa (IBSA), S & T Co-operation Scheme of Department of Science and Technology, Government of India
- E-QUAL (Enhancing Quality, Access and Governance of Undergraduate Education in India) is a European Union-funded international collaborative project where JU is the lead partner in Cultural Studies
- The university has more than a dozen research projects sponsored by industries.

Strategic imperatives and internationalisation strategy

- Fostering a culture of interdisciplinary research
- Providing critical support to differently-abled individuals and equal opportunity in higher education
- Increasing international links, and transferring the credits earned in institutions to students' programmes. Foreign students can also transfer credits from JU to their parent institutions. There is an Equivalence Committee to ensure normalisation of scores for foreign degree holders
- A Foreign Students Cell, under the direct jurisdiction of the Joint Registrar (Academic), looks after the needs of foreign students.

Opportunities for partnership and partner selection criteria

- Further research and innovation partnerships and student and faculty exchange programmes with international institutes of repute, joint doctoral programmes and a joint supervision option for PhD programmes
- The quality and reputation of an institution, the nature of research carried out and how JU's mission will be served are all factors when selecting international partners.

Calcutta University (CU)

- Established in 1857, CU was ranked in 52nd position in the BRICS countries in 2015 by QS World University Rankings
- The National Assessment and Accreditation Council (NAAC) conferred 'A' grade while the University Grants Commission judged it as the 'University with Potential for Excellence'
- University departments provide academic programmes in arts, commerce, science, law, education, management and related areas.

Current international and industry collaboration

- CU has been identified by the MHRD and the UGC as one of five universities in India for the Connect to India programme that will enable it to host foreign students for a given period of time
- The university successfully completed its tenure as India's only Nodal Centre for the UNO's Education Impact Programme

- CU has a wide range of academic exchange programmes and research collaborations with the UK, USA, Australia, Canada, France and Germany
- CU is a part of the Global Laboratory Programme through which US undergraduates do their internships at CU's Department of Bio-technology
- The Institute of Agricultural Science collaborates with the University of Aberdeen and Rothamstad International (UK) for mitigation of heavy metal uptake in rice and other crops
- AK Choudhury School of Information Technology (AKCSIT) became an Associate Member of the ALICE-India Collaboration in June 2015
- International language teachers from France, Spain and Germany teach at CU as a part of faculty exchange programme.

Strategic imperatives and internationalisation strategy

- Centre for Research and Nano-science Technology had been set up as a centre of excellence for interdisciplinary research
- The university has encouraged its affiliated colleges to introduce more professional Bachelor's Degree courses in Business Administration and Computer Applications
- Offering employment-oriented, short-term bridge Certificate or Diploma courses and Soft Skills Development programmes
- The new (2014) Buddhist Studies Department and Pali department courses attract

large numbers of scholars and students from South East Asia. The Law Department, Institute of Foreign Policy Studies and MBA in Finance Programme attract students from neighbouring countries and Eastern Europe.

Opportunities for partnership and partner selection criteria

- Research collaboration, student and faculty exchange
- Continuous improvement of teaching-learning research
- Institutional reputation is the priority along with preference for English-speaking countries.

Presidency University (PU)

- The college was established in 1817 and in 2010, it was upgraded to the status of a full university
- Mission is to make Presidency a seat of learning that is internationally acclaimed
- Provides teaching and research, in humanities, social and basic sciences
- Currently there are around 2,350 students and 150 faculties; 95 per cent of students are from within the state.

Current international and industry collaboration

- PU has MoUs in the Netherlands and the UK for student exchange, faculty exchange and research collaborations

- Additionally, it has facilitated student exchanges in the USA, France, Japan and Brazil
- Has partnered with Edward Food Research and Analysis Centre Ltd (EFRAC), Kolkata; Tata Medical Center, Kolkata for research and innovation.

Strategic imperatives and internationalisation strategy

- The Himalayan Centre will focus on Himalayan ecology, geology, biodiversity, etc
- PU emphasises institutional collaborations, and international student and faculty exchanges.

Opportunities for partnership and partner selection criteria

- Research and innovation, and international partnerships for student and faculty exchanges
- Individual institutes' reputation, academic excellence and complementarity are the criteria.

St Xavier's College (SXC)

- Founded in 1860, SXC provides UG, PG and certificate courses across arts and social science, life and physical science

- SXC has around 7,000 students, of which 0.58 per cent are international students
- It has 14 departments along with 235 teaching staff by different level and 77 PhD holders.

Current international and industry collaboration

- College has student and faculty exchange programmes with institutes in the UK, USA, Belgium and Poland, and a joint degree/ twinning arrangement with Singapore for a certificate in Computerised Accounting
- SXC is also engaged in research and innovation in the biology–chemistry interface.

Strategic imperatives and internationalisation strategy

- Expansion and extension of facilities to reach more and marginalised students

- Received government funds to set up a Central Research Facility for the Science departments
- The college prioritises student and faculty exchange along with research and innovation.

Opportunities for partnership and partner selection criteria

- SXC has the Office of International Studies and Programme in order to reach out to educational institutions across the globe and is open to collaboration with institutes from the USA and European Union countries.

Globsyn Business School (GBS)

- Founded in 2002, GBS is accredited by AICTE (All India Council for Technical Education), has been rated by QAA (Quality Assurance Agency for Higher Education) and rated A** by CRISIL (Corporate Rating Agency in India) for the 4th year running
- GBS offers postgraduate management programmes, and has around 300 students
- There are currently 26 permanent faculty and 15 visiting faculty.

Current international and industry collaboration

- GBS collaborates with some of the best international academic institutions
- Bachelors Programme of London School of Economics was given at Globsyn and dual-degree/accredited MBA programmes also took place with Coventry and Glasgow universities
- This year Globsyn students visited Taylor's University in Singapore.

Strategic imperatives and internationalisation strategy

- Converging education and skills at various levels
- GBS has introduced the PGPM (HR) programme as part of the Management Apprenticeship Programme (MAP)
- Recently Globsyn has moved to tying up with faculties, to increase the value of programmes
- GBS is open to tying up with institutions for research opportunities.

Opportunities for partnership and partner selection criteria

- Looking for expert faculties from foreign institutes to spend time at GBS and teach specialised topics
- GBS lays emphasis on global exposure and reputation of the partner institutes

- The top three preferred countries are the UK, Singapore/Australia and the USA.

Source: Institute website; Response to questionnaire by institute

1 http://censusindia.gov.in/2011-prov-results/prov_data_products_wb.html

2 AISHE 2013–14: All India Survey on Higher Education 201314, Government of India, Ministry of Human Resource Development, Department of Higher Education, New Delhi (2015)

3 www.ibef.org/states/west-bengal.aspx

4 Interview with Government Officials at State Higher Education Department

5 CII Annual Status of Higher Education (ASHE) of States and UTs in India, 2015

6 <https://www.timeshighereducation.com/world-university-rankings/2016/world-ranking#!page/0/length/25>

7 www.topuniversities.com/university-rankings/world-university-rankings/2015#sorting=rank+region=+country=96+faculty=+stars=false+search=

8 Status of International Students in India for Higher Education (2014), UNESCO India Office and MHRD



ANDHRA PRADESH

Andhra Pradesh – a state in South India, aiming to become one of the top three high-performing states in India by 2022 and achieve the status of the best state in the country by 2029. The State Higher Education Department is proactive in exploring international collaboration and has specific focus as elaborated below.

Table 6: Andhra Pradesh demographic and economic overview

Parameter	Details
Population (2011)	49 million ⁹
18-23 age group population	5.81 million ⁹ (11.85 percent of total state population)
Gross State Domestic Product at constant price (2014–15)	Andhra Pradesh's gross state domestic product (GSDP) was estimated at GBP 61.5 billion (US\$ 85.8 billion) over 2014-15 ¹⁰
Expenditure on higher education	Approximately 0.5 per cent of GSDP Percentage of total State budget allotted to higher education: 2.6 per cent ¹¹ is spent on higher education sector
Scale and maturity of higher education system ¹¹	Number of higher education institutions: 3,569. There are seven new central, 21 state and five deemed universities in AP and it stands 7th among Indian states for having the largest number of colleges Andhra Pradesh is one among the top ten states in India, in terms of highest number of colleges (3,389) More than 83 per cent of colleges in the state are in the private-unaided sector Offer degree (UG) and postgraduate courses in technical and non-technical areas Number of skill development centres set up in the last two years: 41 Enrolment by level: PhD and MPhil – 0.22 per cent; PG and PG Diploma – 11.71 per cent; UG and UG Diploma – 88.07 per cent ¹²
Quality metrics ¹²	GER in higher education: 20.02 per cent ¹¹ Pupil–teacher ratio: 14:1 College per 100,000 population: 45 and average enrolment per college: 524 Andhra University in the state was ranked by <i>Times Higher Education</i> in 2015-16 ¹³ and also in QS University Rankings: BRICS 2015 ¹⁴

Key institutions in the state	<p>There were no central institutes in AP until last year; however, in 2015, five new central institutes started their academic programmes: Indian Institute of Technology (IIT), Tirupati, Indian Institute of Science Education and Research (IISER), Tirupati, Indian Institute of Management (IIM) Visakhapatnam, National Institute of Technology (NIT) Tadepalligudem and Indian Institute of Information Technology (IIIT) Kurnool</p> <p>State: Andhra University, Jawaharlal Nehru Technological University (JNTU) Kakinada and Acharya Nagarjuna University</p> <p>Private: Gandhi Institute of Technology and Management (GITAM) University, KL University and Vignan University</p>
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The Andhra Pradesh Knowledge Mission has been created to make Andhra Pradesh an education hub and knowledge society, creating a wealth of skilled human capital within the state to realise the objectives of Vision 2029.

Andhra Pradesh has adopted a two-track approach to achieve its vision of transforming the state into a world-class education and knowledge hub: Track (I) Improvements to existing institutions; and Track (II) Creating new institutions.

The following are the major targets for 2022 and initiatives planned under the three focus areas of access and equity, employability, and quality and excellence:

Access and equity

Target for 2022

- Investment in higher education to be at least 1.5 per cent of GSDP to achieve 40 per cent GER
- Achieve Gender Parity index of 0.8.

Indicative initiatives planned

- Increase affordability by providing financial support in the form of scholarships and vouchers
- Improve accessibility to existing institutions by improving road connectivity, provide incentives for rural students to enrol in existing institutes and adopt shift system
- Improve the quality of distance learning programmes and introduce graduate programmes in vocational education
- Set up new institutions offering relevant programmes in exceptionally low GER areas.

Employability

Target for 2022

- 85 per cent of youth graduating from institutions of higher education and polytechnics in the state will be gainfully employed

- At least 65 per cent of graduates to have undergone an internship/apprenticeship programme
- Align 100 per cent vocational education and training programmes in line with the NSQF.

Indicative initiatives planned

- Conduct a skill gap study and an assessment of vocational training programmes in the state
- Compulsory course under Choice-based Credit System on soft skills and communication training for all universities
- Make soft skill training mandatory in all institutions of higher education and make internships mandatory for selected institutions and programmes
- Align vocational training and education targets with national and international best practices.

Quality and excellence (the following are the key strands to address quality and excellence of the HEIs):

Curriculum target for 2022

- Establish at least two Centres of Excellence in sports development
- Establish 50 NAAC (A) institutions and three Centres of Excellence for arts and humanities.

Indicative initiatives planned

- Changes to existing programmes/curricula and introduction of new programmes
- Promote arts and humanities, sports and extra-curricular development activities.

Faculty development target for 2022

- Student–teacher ratio of 20:1
- Teacher vacancies to be less than 15 per cent.

Indicative initiatives planned

- Investing in capacity building and leadership training programmes for HEIs
- Creating institutions dedicated to imparting and honing training and exposure visits to successful institutions both in country and outside country
- Faculty certification programmes based on research and development accomplishments.

Infrastructure, research and development target for 2022

- Institutions will contribute at least 20 per cent of number of patents registered in the country
- State’s share of R&D spending (national) to be at least 10 per cent
- Private investments in higher education to be at least 35 per cent of expenditure on tertiary education.

Indicative initiatives planned

- Evaluate the gaps in infrastructure (human, physical, social) that hinder R&D activities
- Set up a system of accreditation and certification for existing departments wishing to undertake extensive research and development activities
- Set up Centres for Excellence and National Institutions of Excellence to further R&D.

Partnerships (academic institutional, industry and government) target for 2022

- At least 50 partnerships with nationally and globally renowned Tier I and Tier II institutions
- Establish an Education City through public-private partnership that will offer world-class education, research and development

facilities, and industrial collaboration.

Indicative initiatives planned

- MoUs with institutions (national and international) for training, academic project work and academic enhancement through visiting faculty
- Build symbiotic partnerships with national and international universities of repute to promote research, innovation and exchange of ideas across technical and non-technical disciplines
- Invite international universities and global leaders to work in collaboration
- Set up a public–private partnership in higher education
- Adopt best practices from foreign countries
- Facilitate favourable conditions for the participation of private sector in higher education
- Conduct a comprehensive quality audit of a sample of institutions from diverse streams in order to understand misalignment with national and global standards
- Promote and strengthen existing and new education hubs.

Governance target for 2022

- To be among top three Indian states with the best higher education eco-system in terms of access, equity and quality.

Indicative initiatives planned

- Streamline regulatory framework to provide a more conducive eco-system.

Outbound student mobility:

Andhra Pradesh sends a large number of students to higher education institutions located in countries such as the USA, UK and Australia. Major overseas education consultants have offices in Hyderabad

Visakhapatnam and Vijayawada to help outbound students from the state. Certain media companies organise overseas education fairs in Hyderabad Visakhapatnam and Vijayawada every year.

Inbound student mobility:

Andhra University and Acharya Nagarjuna University are the major destinations for foreign students, mainly from Asian and African countries.

International collaborations:

The state government prefers international collaborations in the following areas: dual-degree and twinning programmes, communication and soft skills,

engagement through MOOCs, student exchange programmes, faculty development and collaborative research, collaboration in sustainability and green technology, joint curriculum design, incubation centres, teaching and research collaboration in Buddhist studies, physical education, etc.

Some universities in Andhra Pradesh are active in a variety of collaborations with foreign universities. Some of these institutional collaborations (indicative, not an exhaustive list) are given below.

Table 7: International collaborations with Andhra Pradesh HEIs

Country	Collaborations
UK	Research and innovation partnerships of Sri Padmavathi Mahila Visvavidyalam with the University of Oxford and University of Sussex
US	Andhra University has joint degrees/twinning programmes with Kansas State University and University of Delaware; Credit transfer programmes with Central Michigan University, the USA and the JNTU Kakinada
Sweden	Faculty exchange and joint degree programmes between JNTU Kakinada and Blekinge Institute of Technology, Sweden
France	Partnerships in research and innovation between GITAM University and International University of Paris

Fourteen higher education institutes in the AP region

were approached to provide information and, based on the

responses received, we have showcased eight institutes below.

Table 8: Profiled higher education institutes from Andhra Pradesh

No.	Institution	Year of establishment	Fields
State/Deemed Institutions			
1	Andhra University	1926	All faculties
2	Acharya Nagarjuna University	1976	All faculties
3	Jawaharlal Nehru Technological University Anantapur (JNTUA)	2008	Science, engineering, and management
4	Jawaharlal Nehru Technological University Kakinada (JNTUK)	2008	Science, engineering, and management
5	Dr B R Ambedkar University, Srikakulam	2008	Science, arts, law and commerce
6	Sri Padmavati Mahila Visvavidyalayam, Tirupati (Women's University)	1983	All faculties including nursing
Private Institutions			
7	GITAM University	1980	All faculties
8	Vignan University	2008	All faculties

Andhra University (AU)

- Established in 1926, Andhra University offers 313 courses in arts, commerce, management, science and technology, engineering, law, pharmacy and education
- AU has around 14,000 students and 700 faculty members
- The university has about 400 international students and research scholars from 24 countries
- The university is equipped with three international hostels and has been ranked among the top 200 universities in QS University Rankings: BRICS 2015.

Current international and industry collaborations

- The University currently has partnerships with Perth College, Blekinge University, University of Western Sydney, Brunel University, University of Dundee and Robert Gordon University

- The university has joint degrees/twinning programmes with the USA, Sweden and Scotland.

Strategic imperatives and internationalisation strategy

- An office of Dean, International Affairs, takes care of all international affairs
- AU is aiming to increase the strength of International students (to 800) in the next five years.

Opportunities for partnerships

- Interested in the Joint development of MOOCs and delivery of online courses, faculty exchange, visiting faculty in mechanical engineering, electronics and communication engineering, computer science and systems engineering, business management, etc.
- Developing incubation centres and joint research programmes in engineering, management and pharmaceutical sciences, etc.

Acharya Nagarjuna University

- Acharya Nagarjuna University was established in 1976, has six major research centres and an active international students cell.

Current international and industry collaborations

- The university has collaborations with Jan Dlugosz University, University of West Georgia, the USA, INDICASAT, Republic of Panama, Ambo University, Ethiopia, MZUMBE University, Tanzania, Excorp Biologicals, USA, ICRISAT, Software Technology Park, Nigeria, Army Business School, Nepal and Global Networks, the Maldives.

Strategic imperatives and internationalisation strategy

- Internationalisation in areas such as engineering, pharmacy, etc.

Opportunities for partnerships and partner selection criteria

The following centres of the university are looking for partnerships:

- Satellite Data Analysis Centre
- DST Big Data Analysis Centre

- CDAC – Advanced Computing Centre
- GERMI – Solar Energy Maintenance
- Intel – Intelligence systems and research in Dr BR Ambedkar Chair
- Centre for Women’s Studies
- Mahayana Buddhist Studies Chair
- Disaster Mitigation Centre
- Centre for Gandhian Studies
- Centre for Scientific Socialism
- Centre for Afro-Asian Philosophies
- Mahatma Jyothirao Phule Centre for Studies in Social Policy and Social Action

Jawaharlal Nehru Technological University – Anantapur (JNTU A)

- Jawaharlal Nehru Technological University (JNTU) in Anantapur started in 2008, has four constituent colleges and 198 affiliated colleges, 316 teaching staff and 250,000 students.

Current international and industry collaborations

- JNTU A has six partnerships on student exchange, faculty exchange and development, research and innovation, curriculum development and joint degrees with institutions in the UK and USA.

Strategic imperatives and internationalisation strategy

- To encourage all affiliated colleges to apply for NBA/NAAC accreditation
- To create more research centres in constituent/affiliated colleges, more Centres of Excellence and Incubation Centres, and to strengthen industry–institution Interaction
- An Entrepreneurship Development Cell (EDC) in each of the constituent and affiliated colleges has been introduced.

Opportunities for partnerships and partner selection criteria

- Interested in student exchange, faculty exchange, research and innovation, curriculum development and twinning programmes
- Prefers partnerships with institutions from the UK, USA, Australia, France, Japan, Germany, China and Singapore.

Jawaharlal Nehru Technological University – Kakinada (JNTU K)

- Jawaharlal Nehru Technological University in Kakinada (JNTU K) was established in 2008 and has 263 colleges affiliated to it with undergraduate course in 18 disciplines and

postgraduate programmes in 71 specialisations

- JNTU K has a dedicated Directorate for Foreign University Relations, a dedicated Directorate for R&D, PhD admissions, an Innovation Centre and a directorate for development of faculty
- It currently enrolls 750 undergraduate students, postgraduate students and 1,680 (full-time and part-time) doctoral students
- JNTU K has 264 staff including 126 teaching assistants.

Current international and industry collaborations

- JNTU K has joint degree and faculty exchange programmes with the Asian Institute of Technology (AIT), Bangkok and the Blekinge Institute of Technology, Sweden and credit transfer programmes with Central Michigan University, the USA
- Has partnerships with various corporations.

Strategic imperatives and internationalisation strategy

- JNTU K focuses on education, research, recognition, transformation and innovation
- JNTUK aims to promote knowledge sharing, initiate new areas of research and generate international

funding

- Aims to provide global-standard education and world-class research
- JNTU K aims to increase student and faculty members' exchange and dual-degree programmes.

Opportunities for partnerships and partner selection criteria

- Collaborative research, faculty exchange, faculty development, double-degree programmes, joint doctorates, joint executive education programmes, and student exchange programmes
- Partnerships with foreign faculty directly or through Massive Open Online Courses (MOOCs)
- Collaborations in skills development and incubation centres.

Dr BR Ambedkar University, Srikakulam

- Established in 2008. Current international and industry collaborations
- Has student exchange programme with Afghanistan and an Incubation and Entrepreneurship project and research and innovation project with industry.

Strategic imperatives and internationalisation strategy

- To convert all courses towards skills development and employability
- Interested in exploring dual-degree programmes and courses through MOOCs.

Opportunities for partnerships and partner selection criteria

- Keen to develop partnerships in research and innovation, curriculum development and joint degree programmes, student exchange and faculty exchange.

Sri Padmavati Mahila Visvavidyalayam, Tirupati (Women's University)

- Established in 1983, it has 4000 students and 100

faculty members in various programmes.

Current international and industry collaborations

- The university has research and innovation partnerships with the University of Oxford and University of Sussex, and an international MoU with Stanford University, USA
- Faculty has project collaborations with institutions such as Penn State University, USA.

Strategic imperatives and internationalisation strategy

- Provide quality education and skills development among women through international exposure and exchange
- Provide leadership qualities among women to increase number of women leaders
- Promote centres of excellence in specific areas of research
- Promote innovation and start-up culture among students.

Opportunities for partnerships and partner selection criteria

- Internationalisation's main focus is on acquiring skills to global standards
- The university is looking for partners for joint research and innovation research, twinning programmes and joint degree programmes.

as well as opportunities to participate in global community engagement projects that would offer credits to students

- Looking for faculty exposure programmes in the use of laboratory equipments, preparation of research tools, design of foundation and domain courses, development of content on digital platforms, upgrading of advanced research skills, etc.

Gandhi Institute of Technology and Management (GITAM) University

- Founded in 1980, the university has three campuses and also offers several programmes through distance learning
- Currently has around 16,000 students and 910 faculty members.

Current international and industry collaborations

- Has eight research/innovation partnerships with institutions from France, the UK and USA
- Has two joint degree programmes with the USA and France, and ten curriculum development partnerships with leading industries.

Strategic imperatives and internationalisation strategy

- Looking for educational partnerships through MoUs, and student and faculty exchanges
- Adopting Choice-based Credit System (CBCS)
- Attract international students.

Opportunities for partnerships and partner selection criteria

- GITAM has a Central Research Laboratory (CRL) to promote high-quality research in science and engineering disciplines
- Focuses on institutions from the UK, USA and Germany
- Looking for faculty exchange, twinning programmes, research collaborations, and establishing research labs.

Vignan University

- Vignan University, well known for its state-of-the-art infrastructure and excellent placement record, has around 5,000 students and 350 faculty members.

Current international and industry collaborations

- Student exchange programmes with universities in Ireland, the USA, Korea and Singapore
- Collaborations in curriculum development and research with South Korea and Taiwan.

Strategic imperatives and internationalisation strategy

- To evolve into a centre of excellence in science and technology
- Creating quality research environments towards centres of excellence
- Strengthen and maintain professional collaborations.

Opportunities for partnerships and partner selection criteria

- The university is looking for international student exchanges, staff exchanges, joint research projects, joint publications, and joint curriculum development.

Source: Institute website; Response to questionnaire by institute

9 www.ap.gov.in/about-ap/ap-at-glance/

10 www.ibef.org/states/andhra-pradesh.aspx

11 Knowledge Mission Document, Department of Higher Education, Government of Andhra Pradesh (2015): <http://apit.ap.gov.in/facts-of-andhra-pradesh/>

12 AISHE 2013–14: All India Survey on Higher Education 201314, Government of India, Ministry of Human Resource Development, Department of Higher Education, New Delhi (2015)

13 <https://www.timeshighereducation.com/world-university-rankings/2016/world-ranking#!/page/0/length/25>

14 www.topuniversities.com/university-rankings/brics-rankings/2015#sorting=rank+country=96+stars=false+search=



TELANGANA

Telangana – a new state carved out of Andhra Pradesh in South India in 2014 with Hyderabad as the joint capital (with Andhra Pradesh) until 2023. Hyderabad is a major centre for higher education and research in both Andhra Pradesh and Telangana states.

Table 9: Telangana demographic and economic overview

Parameter	Details
Population	35.2 million ¹⁵
18-23 age group population	4.1 million ¹⁶
GSDP at constant price (2014–15)	Telangana’s gross state domestic product (GSDP) expanded at a compound annual growth rate (CAGR) of 13.5 per cent to GBP 48.9 billion (US\$ 71.1 billion) between 2004–05 and 2014–15 ¹⁷
Scale and maturity of higher education system ¹⁶	<p>Number of higher education institutions: 2,680</p> <p>There are three central universities, 16 state universities and two deemed universities in Telangana.</p> <p>Majority of the colleges (more than 83 per cent) in the State are in the private sector with 1,099 private colleges, 67 government-aided colleges and 126 government colleges</p> <p>Of the total colleges in the state, the top three specialisations are: i) General (70 per cent), ii) Engineering and Technology (15 per cent), and iii) Pharmacy (four per cent)¹⁸</p> <p>Enrolment by level: PhD and MPhil – 0.003 per cent; PG and PG Diploma – 14.83 per cent; UG and UG Diploma – 84.83 per cent</p>
Quality metrics ¹⁶	<p>GER: 35.5 per cent</p> <p>College per lakh population: 55 and average enrolment per college: 597</p> <p>As at 31 January 2015, 55 government degree colleges were accredited in Cycle 1 and 31 government degree colleges were accredited in Cycle 2 of NAAC</p>
Key institutions in the state	<p>Central: University of Hyderabad, Indian Institute of Technology (IIT) Hyderabad and English and Foreign Languages University (EFLU)</p> <p>State: Osmania University, JNTU Hyderabad, Acharya NG Ranga Agricultural University and Kakatiya University</p> <p>Private: BITS Pilani-Hyderabad Campus</p> <p>Public private partnership (non-profit): International Institute of Information Technology (IIIT), Hyderabad</p>

Table 10: Telangana’s primary focus for higher education¹⁹

Axis	Targets	Initiatives planned
Access	Establishment of new colleges in under covered or uncovered areas of the state Introduction of demand-driven programmes in all higher education institutions	Identify areas with low GER, CPI and institutional density for the establishment of new colleges Strengthening existing colleges to meet demand for higher education
Equity	Improve access to SC, ST, Women and OBCs to enable students from these categories to achieve GER at par with state average	Extend support to SC, ST and OBC students through the setting up of hostels. Also aims at creating women-friendly ecosystem in institutions to increase enrolment of girls. Encourage institutions to develop disabled-friendly infrastructure
Excellence	Improve quality of higher education in line with global standards	Encourage institutions to adopt best teaching-learning practices Ensure that all institutions in the state are accredited
Employability	Enhancing employability of students	Train teachers at regular intervals to impart training to students in industry-relevant skills

Table 11: Improving access, quality of research, governance reforms, employability, etc. are some of the major objectives of the state government in the state’s higher education sector¹⁹

Access	Research	Governance reforms	Youth employability
More hostels to promote higher education among weaker sections of the society. Government has issued orders for establishing one hostel for girls and one hostel for boys in each Assembly constituency.	To create conducive environment for research in institutions in collaboration with industry Setting up of research institutes Encourage faculty and students to undertake research	Instituting state-level regulatory mechanism to monitor expansion and functioning of higher education institutions Application of ICT to monitor the functioning of the institutions	To improve the quality in technical education, 27 Skill Development Centres (SDC) have been established in polytechnics to provide add-on skills The State Institute of Vocational Education is conducting three-month- and one-year-duration certificate courses for the benefit of drop outs and failed students throughout the state

Outbound student mobility:

Telangana sends a large number of students to higher education institutions located in countries such as the USA, UK and Australia. Major overseas education consultants have offices in Hyderabad to help outbound students from the state. Certain media companies organise overseas education fairs in Hyderabad.

Inbound student mobility:

Telangana has been a major destination for foreign students, mainly from Asia and Africa. The number of foreign students joining Osmania University in Hyderabad has been increasing over the years. The Study in India Programme (SIP) of the University of Hyderabad also attracts students from Europe and North America for short-term courses. Telangana is reported to have

around 2,742 foreign student (7.89 per cent of total foreign students studying in India) and ranks fourth highest in attracting students from overseas.

International collaborations:

Many universities from Telangana are active in collaborations with foreign universities. Some of the institutional collaborations (indicative, not an exhaustive list) are given below.

Table 12: International collaborations with Telangana HEIs

Country	Collaborations
UK	IIT Hyderabad, University of Hyderabad, BITS Pilani-Hyderabad Campus and NALSAR University of Law have had partnerships with various UK universities
US	Acharya NG Ranga Agricultural University, IIT Hyderabad, NALSAR University of Law and JNTU Hyderabad have had teaching and research collaborations with multiple US Universities; student exchange between IIT Hyderabad and Purdue University
Japan	Academic exchange programmes between IIT Hyderabad and University of Tokyo, Osaka University and Ritsumeikan University
Australia	University of Hyderabad, NALSAR University of Law and BITS Pilani-Hyderabad Campus have had research, student exchange and curriculum development partnerships

Eighteen higher education institutes in the Telangana region were approached to provide information and, based on the responses received, we have showcased seven institutes below.

Table 13: Profiled higher education institutes from Telangana

No.	Institution	Year of establishment	Fields
Central/Institutes of National Importance			
1	University of Hyderabad	1974	All faculties
2	Indian Institute of Technology, Hyderabad (IITH)	2008	Science, engineering and liberal arts
State/Deemed Institutions			
3	Nalsar University of Law	1998	Law
4	Jawaharlal Nehru Technological University, Hyderabad (JNTUH)		Science and engineering
5	Acharya N G Ranga Agricultural University (ANGRAU)	1964	Agriculture
Private Institutions			
6	Birla Institute of Technology and Science (BITS) Pilani - Hyderabad Campus	2008	Science and Technology
Other (Public, not for profit) Institutes			
7	Institute of Public Enterprises, Hyderabad	1964	Business enterprises

University of Hyderabad (UoH)

- Founded in 1974, UoH has been recognised with 'A' grade by NAAC and was in the QNS 2010 ranking of top 200 Asian Universities
- UoH has 12 schools of study, over 400 faculty and more than 5,000 students.

Current international and industry collaborations

- Over 60 student exchange programmes in Asia, Europe,

the USA, Australia and South Africa

- UoH introduced the Study in India Programme (SIP) in 1998, with collaborations in the USA and Australia
- The institution has tie-ups in Europe, the USA and Asia under various projects.

Strategic imperatives and internationalisation strategy

- UoH has impressive scientific, technological and related infrastructure.

Opportunities for partnerships and partner selection criteria

- Keen to develop partnerships in student exchanges, joint research and innovation, faculty exchange and development, and visiting faculty
- A Technology Business incubation (TBI) Park undertakes highly specialised research in life sciences, chemistry and pharmaceutical sciences.

Indian Institute of Technology, Hyderabad (IITH)

- Established in 2008, IITH offers undergraduate and postgraduate degrees in eight disciplines of engineering and research degrees in engineering, sciences and liberal arts
- Currently there are 1,887 students and 147 faculty members.

Current international and industry collaborations

- IITH has had collaborated with UK universities and signed 42 MoUs with leading higher educational institutions across the USA, Canada, Japan, Norway and Australia
- IITH's internationalisation is complemented by the friendship programme with Japan; 51 faculty members from IITH travelled to various Japanese universities and 33 faculty members from various Japanese Universities visited IITH for academic interaction
- MoUs have been signed under academic exchange programmes with Japanese universities
- IITH's student exchange programme is mainly with universities from Japan and the USA
- IITH sends faculty members

to universities abroad for three months during the summer.

Strategic imperatives and internationalisation strategy

- IITH recently conducted a review of its academic and research accomplishments and key strategic imperatives will be implemented in the next five to seven years
- IITH will be hosting students from Deakin University, Australia this year.

Opportunities for partnerships and partner selection criteria

- IITH is planning to attract the best faculty members from across the globe and attracting students into the master's programme is also a priority
- Interested in faculty exchange, collaborating with UK institutions in research projects and joint degrees. particularly for PhD programmes
- Faculty members can teach in UK institutions in highly specialised courses
- IITH offers use of a Digital Fabrication (3D Printing) Lab at the first year level for all incoming undergraduate students
- IITH is also interested in short-term research facility for research students from IITH in UK institutions in the following areas: energy, high

speed flows, combustion, digital fabrication, composites, communication and signal processing, machine learning, big data, networking, algorithms, cyber physical systems, internet of things, nano-science and technology, wireless sensor networks, photography, visual communication, typography and film.

Nalsar University of Law (NALSAR)

- NALSAR was established in 1998, and has around 550 UG and PG students, 51 PhD students and 38 faculty members.

Current international and industry collaborations

- NALSAR has student and faculty exchange partnership programmes with North America, Australia and Europe, R&D tie-ups in Australia, North America, Europe and Asia, and curriculum development partnerships in Australia, North America, Europe and Asia.

Strategic imperatives and internationalisation strategy

- University aims to create a symbiotic relationship between research and teaching and develop

knowledge-based interventions in order to improve access to justice for vulnerable groups and marginalised communities.

Opportunities for partnerships and partner selection criteria

- Institution looks for partnerships in research and innovation, faculty exchange, curriculum development and joint degrees
- Individual institutes with reputation and cutting-edge expertise in areas of common interest will be preferred alongside SAARC Law Region and the UK.

Jawaharlal Nehru Technological University, Hyderabad (JNTUH)

- Jawaharlal Nehru Technological University in Hyderabad (JNTUH is a NAAC 'A' Grade' university
- Currently there are 2,423 students and 213 faculty members, with around 25 BTech programmes.

Current international and industry collaborations

- JNTUH has collaborative programmes with Sweden, the USA and Asia, and collaborations with a range of industry nationally.

Strategic imperatives and internationalisation strategy

- Fostering global academic

and research alliances is an imperative of the university alongside improving student preparedness, internationalising the curriculum, enhancing international profile and strengthening research and knowledge.

Opportunities for partnerships and partner selection criteria

- The university has an exclusive R&D cell, and is planning to internationalise its curriculum so that graduates can join further courses in any country.

Acharya NG Ranga Agricultural University (ANGRAU)

- ANGRAU established in 1964, offers UG, PG and doctoral programmes as well as polytechnic courses.

Current international and industry collaborations

- ANGRAU currently has partnerships with many foreign universities in the Czech Republic and the USA.

Strategic imperatives and internationalisation strategy

- ANGRAU has an Office of the Director (International Programmes), which offers a range of support services, and partnerships in curriculum development to improve industry relevance.

Opportunities for partnerships and partner selection criteria

- Research collaborations in the areas of agriculture, agricultural engineering, food science and technology and nano-technology
- Keen on student exchange programmes and internships/fellowships in host countries, faculty development programmes and joint seminars and other academic programmes.

Birla Institute of Technology and Science (BITS), Pilani, Hyderabad

- BITS is one of the premier technical and science institutes of higher learning in India
- Has 750 teaching staff, and 3,200 students: 2,700 undergraduates, 350 postgraduates and 150 doctoral students.

Current international and industry collaborations

- Has more than 50 student exchange, faculty exchange and curriculum development partnerships in Asia, North America, Australia and Europe
- Has ten partnerships on research and innovation in Europe, and North and South America
- BITS Pilani Hyderabad

Campus, in collaboration with the Department of Science and Technology, Govt, has a Technology Business Incubator.

Strategic imperatives and internationalisation strategy

- Institution's Mission 2020 imperatives are: 1) Faculty and staff development, 2) Innovation and entrepreneurship, 3) Quality assurance and assessment, 4) Internationalisation, 5) Industry engagement, 6) Inter-disciplinary research, 7) Technology enablement
- Aims to admit foreign students as ten per cent of the total student population, and is interested in promoting dedicated summer programmes and internships
- Will accept foreign faculty on long- or short-term stays.

Opportunities for partnerships and partner selection criteria

- Interested in student and faculty exchange, research/innovation and curriculum development
- Interested in twinning programmes

- Main focus is on engineering and basic science education with high-standing institutions.

Institute of Public Enterprises, Hyderabad (IPE)

- IPE, established in 1964, is devoted to education, training, research and consultancy for business enterprises in the public and private sector
- IPE is recognised as a Centre of Excellence and has over 500 postgraduate students and 46 faculty members.

Current international and industry collaborations

- Has ten International student and faculty exchange programmes in Slovenia, Malaysia, New Zealand, Netherlands and Mexico, ten research and innovation partnerships with Canada, Malaysia, Korea, Slovenia, New Zealand, Netherlands and Mexico, and an MoU with The Entrepreneurship Zone, Hyderabad.

Strategic imperatives and internationalisation strategy

- Institution has dedicated centres for cutting-edge research on topical issues

- Faculty members are encouraged to undergo joint research, visits and collaborations with industry/government, while students are encouraged to interact with industry/academia
- IPE is keen on internationalisation in the areas of research and publications, faculty exchange and cross-learning, governmental collaboration, etc.

Opportunities for partnerships and partner selection criteria

- IPE focuses on institution's reputation and countries with similar socio-political conditions, with the UK the first country of choice.

Source: Institute website; Response to questionnaire by institute

15 Telangana state portal: www.telangana.gov.in/about/state-profile

16 AISHE 2013–14: All India Survey on Higher Education 2013/14, Government of India, Ministry of Human Resource Development, Department of Higher Education, New Delhi (2015)

17 www.ibef.org/states/telangana.aspx

18 CII Annual Status of Higher Education (ASHE) of States and UTs in India, 2015

19 RUSA State Higher Education Plan 2015

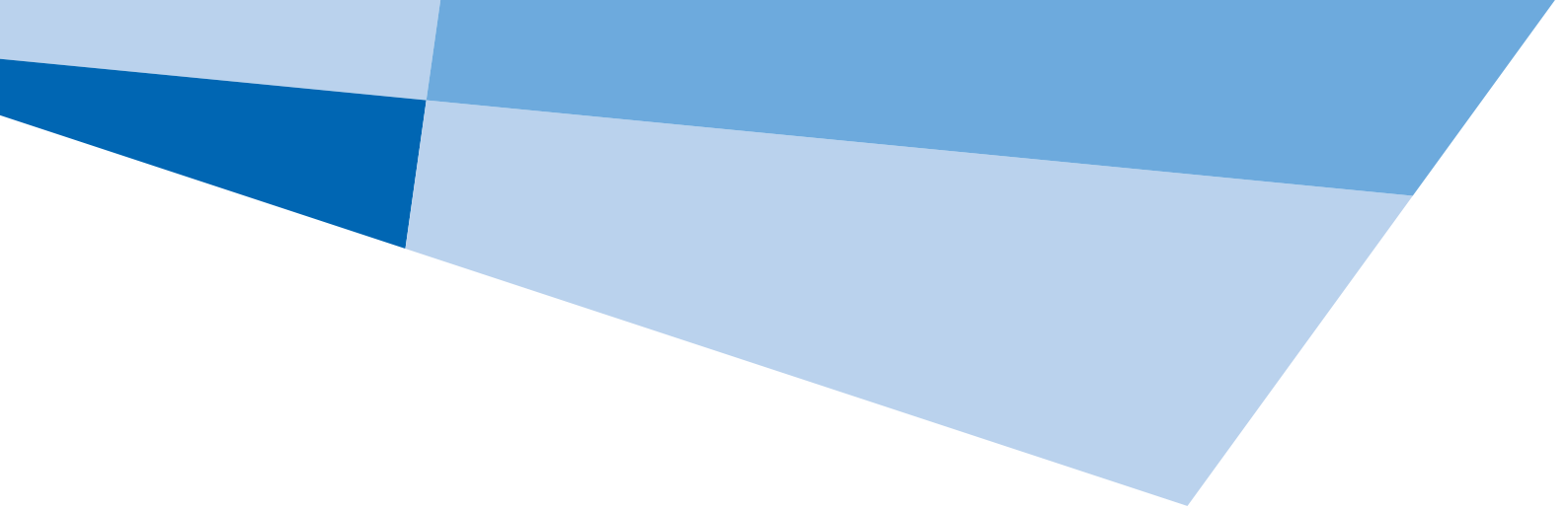


MAHARASHTRA

Maharashtra – a state in the western part of India has the highest gross state domestic product (GSDP) in the country. Mumbai (formerly called Bombay), the Capital of this State, is the business capital of the country.

Table 14: Maharashtra demographic and economic overview

Parameter	Details
Population (2011 census)	112.4 million ²⁰
18-23 age group	13.4 million ²¹ (9.5 per cent of India's 18–23 age group population)
GSDP	Maharashtra's GSDP, the highest among all states in the country, was GBP 184.9 billion (US\$ 264.8 billion) in 2014–15 and grew at a CAGR of around 11.1 per cent between 2004–05 and 2014–15 ²²
Scale and maturity of higher education system ²¹	<p>Has 45 universities (4th highest after UP, Tamil Nadu and Rajasthan)²³ and institutes of national importance</p> <p>With 4,369 colleges, which is 12.30 per cent of all colleges in India, Maharashtra ranks number two on total number of colleges in any state in India; of the total colleges in the state, the top three specialisations are: i) General (78 per cent), ii) Engineering and Technology (four per cent), and iii) Education/Teacher Education (four per cent)²³</p> <p>In terms of access, Maharashtra has – 35 colleges per lakh population as compared to the all India average of – 26 colleges per lakh population</p> <p>In terms of average enrolment per college, Maharashtra's – 531 is lower than all India average of – 752</p> <p>Enrolment (per cent) by level: PhD/M Phil – 0.3 per cent; PG/PG diploma – 12.5 per cent and UG/UG diploma – 87.2 per cent</p>
Quality ²¹ metrics	<p>GER has increased from 18 per cent in FY2007 to 25.6 per cent in FY2013</p> <p>Pupil–teacher ratio of 20:1</p> <p>21 universities accredited (2nd largest after Tamil Nadu) and 992 colleges accredited by NAAC, which is one of the highest for any State</p> <p>Three of the HEIs in Maharashtra (Indian Institute of Technology, Bombay, University of Mumbai, and Savitribai Phule Pune University) have been ranked by the Times Higher Education and QS World Rankings during 2015–16^{24, 25}</p>



Key institutions in the state	Central: IIT Bombay and Tata institute of Social Sciences State: Pune University Private: Symbiosis International University
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Maharashtra has several state legislations regulating higher education. The 1974 Universities Act was replaced by the 1994 Maharashtra Universities Act, which act underwent some major amendments in 2000 that helped the universities of Maharashtra to improve the academic atmosphere in the university campuses as well as in the affiliated colleges to an extent.

The university culture in the state was led by Mumbai, Pune and Nagpur and then evolved through universities in Aurangabad, Kolhapur and later other locations in the state. This has been supported well with institutions of repute established by the centre and the some private institutions run by trusts, societies and local bodies. Development and outreach by the universities has been mainly through the affiliating college systems, which have had a large impact on access. The Open University movement manifested in the form of the Yashwantrao Chavan Maharashtra Open University (YCMOU) has also been a major initiative that has brought GERs up to almost 18 per cent for the state.

The Mumbai Pune Corridor has seen a large focus on higher education development and

consumption by industry over the years.

The Affiliating System has loaded the universities of Mumbai, Pune and Nagpur with the challenges of operations, administration and local college-level aspirations that leave all stakeholders and society at large wanting reform at both macro and micro level. Regional disparities in terms of industrialisation, developmental goals, economic parameters and even simple reach of technology add to the need for differential approaches and tactics to be deployed. This in turn has resulted in differential quality and related issues. There is a wide variation in terms of quality as well as dispersion of education facilities and related ICT infrastructure across the State. Employability of students graduating from higher education institutions has also become a major issue. However, one of the main challenges of the state is the quality and culture of research within universities. Significant steps need to be taken in order to make recommendations of what changes can be made to improve the quality and emphasis on research by both faculty and students.

As far as privatisation is concerned, a recent comment by the Governor of the State reflects the opinion on internationalisation from the perspective of private universities in Maharashtra.

“We have witnessed globalisation in trade and commerce during the last two decades. But we are yet to see the benefits of globalisation in the field of higher education, particularly in teaching and research.” Governor C Vidyasagar Rao²⁶

In this context the government recognises that a large number of Indian youth go abroad for higher education at their own cost. Bringing in leading universities of the world is seen not only of benefit to the education scenario but will also retain significant national wealth within the country. By encouraging the presence of the leading universities, the government aims to bring in quality transformation through improved pedagogy and a holistic approach to learning that incorporates teaching, research, innovation and entrepreneurship.

Technology-enabled learning

Maharashtra is in the process of releasing a new Education Act and envisages the effective

and complementary use of conventional, open and distance learning (ODL) and learning-through-technology systems in the learning processes.

State-level committee reports also recognise that the time has therefore come to dispense with the concept of fitting conventional education in the rigid frame of +3 years. Instead, it is time to adopt the modular academic structure with flexible approach of adaptive pace of learning with minimum and maximum duration for the completion of a degree or other similar programmes.

There have been recommendations to establish Maharashtra State Higher Education Information Communication Network (MS-EDUNET) connecting all the higher education institutions in the State of Maharashtra²⁷. Presently the State is using an MIS system to manage information. Yet another feature of the new paradigm is the A3 (anyone, anywhere, anytime) connected society that is emerging. Instant access to open resources that is now possible for anyone has enabled the learning process to be a lifelong activity with a degree of flexibility.

The Kokodar Committee report²⁸ also recommends that Maharashtra should move fast in deriving full advantage of National Knowledge Networks. Through

such an approach all universities in Maharashtra could become involved in creating open learning platforms. With wiki processes gaining importance day by day, such open learning platforms could well be transformed into research platforms to support several relevant research activities in the social context.

Faculty development

One of the important Government assigned reports by the Kakodar committee, recommends that the university programmes can become far stronger by engaging faculties in translation of acquired knowledge to viable applications in real life at workplaces in collaborating institutions. This needs a framework that facilitates mobility of faculty to other collaborating institutions such as industry entities, R&D laboratories, NGOs engaged in societal development or an individual or a group of individuals intending to take up project deployment work.

Faculty development through external peer reviews is also recommended. As a part of the continuing efforts to achieve greater excellence, an academic institution should periodically subject itself to comprehensive external peer reviews by a group

of eminent peers at various levels including the university, departments, and colleges. The external peer review process should be backed up by a quality assurance framework across the board covering all functions of the university-college.

As a part of the continuing efforts to achieve greater excellence, an academic institution should periodically subject itself to comprehensive external peer reviews by a group of eminent peers. Such reviews should take place at various levels including the university, departments, colleges and faculty. The external peer review process should be backed up by a quality assurance framework across the board covering all functions of the university.

Employability

The committee has recommended a comprehensive framework for skills education and training as an add-on to the existing curriculum. A key element in such a framework would be to create sustained partnerships between prospective employers, development planners, industry associations, society groups and

the university as well as colleges at multiple levels.

Maharashtra is well positioned to offer both access and better employability with this very strong infrastructure when compared to some other states of India. The key is to invest in making the entire infrastructure work together as a single ecosystem. An ecosystem that can bring aspirations of youth and ambitions of business and industry together, to use knowledge, research and development is needed. This may be achieved with strong government support through adequate funding, positive regulation, reforms through legislative intervention, investments in ICT, and well-articulated and controlled private participation initiatives.

Accreditation

Efforts are being made to move towards a more modular credit-based system as per recommendations of high-

level committees. As a part of learner-centric approach, entire academic programmes should be modular and credit based with a degree of flexibility on the part of students to choose the courses they would like. As long as they earn a specified minimum number of credits at the institution in which they are enrolled, they should have the freedom to choose courses offered by other institutions with transfer of credits to make up the requirements for a degree.

State of privatisation

The Maharashtra Unaided Private Professional Educational Institutions (Regulation of Admissions and Fees) Act, 2015 came into force on 12 May 2015 and will help determine the reasonableness of fees-levied Institutions, considering various factors including profiteering or charging of capitation fees. Minority colleges will have to admit at least 51 per cent of students from the minority category.

The government has decided to permit those private institutions that have demonstrated exceptional track records in establishing and running courses of higher education, to establish self-financed universities. The government will have minimum regulatory interference in their formation and functioning, but will retain some supervisory and regulatory powers to ensure that self-financed universities conform to the highest level of infrastructure facilities and academic requirements.

The government wants to ensure that the process of encouraging such growth does not create hurdles to education for underprivileged sections of the society or allow mismanagement of any sort, detrimental to the public interest or general education policy of the government²⁹.

The state government has received letters of intent (LoI) from 35 applicants so far. Bills to establish, incorporate and regulate two universities for development and advancement of higher education – Sandip University in Nashik and MIT Art, Design and Technology University in Pune – were introduced in the Legislative Assembly during the 2015 monsoon session³⁰.

Table 15: Maharashtra's primary focus for higher education

	Targets	Initiatives Planned
Access	Aim at an increase of five per cent by 2020	New Maharashtra Law University, IIM Nagpur
Equity	Reservations in all Private colleges Opening more Colleges in remote areas	Affirmative action through 50 per cent reservations in private universities Colleges also have to follow the SC/ST quotas as specified under legislation
Excellence	Improve research culture at universities Reducing the administrative burden of state universities	Understanding systemic gaps and other recommendations that can galvanise the research environment in the state Proposal for cluster universities submitted, which aims to improve autonomy and efficiency
Employability	Improve student employability and give a focus on vocationalisation	Industry partnerships and trainings under the Corporate Social Responsibility regime

Outbound student mobility: Maharashtra sends a good number of students to higher education institutions located in countries such as the USA, UK, many other European Countries and Australia. Major overseas education consultants have multiple offices in Mumbai and Pune to help outbound students from the State. The British Council and other agencies organise overseas education fairs in Mumbai and Pune.

Inbound student mobility: A recent report by CII has ranked Maharashtra third highest among all Indian states in attracting students from overseas – 3,888 foreign students, or 11.18 per cent²³. Most of the students came from neighbouring countries, from South East Asia, the Middle East and Africa.

Twelve higher education institutes in Maharashtra were approached to provide information and, based on their responses, we have showcased seven institutes below.

IIT Bombay (IITB)

- Established in 1958, IITB is recognised worldwide as a leader in engineering education and research
- The institute attracts the best students from the country for its bachelors, masters and doctoral programmes
- The institute enrolls 9,600 students and has 584 full-time faculty members.

Current international and industry collaborations

- The office of the Dean for

International Relations co-ordinates all international activities

- MOUs are in place with Australia, Canada, China, Denmark, Germany, Finland, France, Japan, Korea, Russia, Switzerland, Turkey, Taiwan, Sweden, the USA and the UK
- During 2014–15, IIT Bombay signed 25 MoUs with various foreign universities
- There are Student Exchange Agreements with partner institutions
- A joint venture with Monash University, Australia has resulted in The Academy to enhance research collaborations between Australia and India.

Table 16: Profiled higher education institutes from Maharashtra

No.	Institution	Year of establishment	Fields
Central/Institutes of National Importance			
1	Indian Institute of Technology (IIT) Bombay	1958	Science and engineering, humanities and social science
2	Tata Institute of Social Sciences (TISS)	1936	Social sciences
State/Deemed Institutions			
3	Savitribai Phule Pune University	1949	All faculties
4	Institute of Chemical Technology	1933	Science and engineering
Private Institutions			
5	Symbiosis International University	2002	Health and bio-medical sciences, humanities and social sciences and engineering, law and management
6	Narsee Monjee Institute of Management Studies (NMIMS)	1981	All faculties
7	Welingkar Institute of Management Development and Research	1977	Management

Strategic imperatives and internationalisation strategy

- IITB has launched a foreign Teaching Assistantship programme and engages with renowned universities across the globe for joint PhD supervision, PhD programmes and workshops
- IITB is targeting about 75 UG semester exchange students, 20–30 joint supervisions and 20–30 foreign PhD students in the next three years.

Opportunities for partnership and partner selection criteria

- Priority areas are student exchanges. more joint PhD

supervision and joint degree partnerships.

Tata Institute of Social Sciences (TISS)

- Established in 1936, the institute has 1,980 students and 250 faculty members.

Current international and industry collaborations

- TISS has established collaborative research and student exchange programmes with over 25 universities and consortiums in UK, Asia, the United States and Europe
- Over 37 student exchange programmes in Sweden,

Germany, the USA Canada, the UK, Australia, France, Finland, Thailand and Afghanistan, while faculty exchanges are also present with Sweden, Germany, Canada, the UK, Australia, France and Thailand

- TISS is involved in critical research in diverse areas such as education and literacy, family and children, women’s issues, HIV/AIDS, rural and urban development issues, displacement, youth and human development, and the rights of indigenous peoples and minorities
- It offers a master’s

programme in Family Studies with select American and Australian Universities.

Strategic imperatives and internationalisation strategy

- TISS actively partners with globally renowned universities and Institutions in North America, Europe, Africa and Asia
- Academic collaboration and networking with other institutions is a priority area
- TISS seeks to further strengthen independent research in a climate of intellectual rigour and academic freedom.

Opportunities for partnership and partner selection criteria

- TISS is continuously up-scaling its capacity to develop and disseminate print, electronic and audiovisual knowledge resources, as well as augmenting and upgrading its academic, administrative and infrastructural capacities

- They follow an open application and selection system for its exchange programmes, and, on average, 50 to 70 applications are received for two positions making the exchange programmes highly competitive, credible and rigorous.

Savitribai Phule Pune University (SPPU)

- SPPU was established in 1949 and offers programmes in various areas including science, commerce, social sciences, arts, fine arts, languages and management studies
- SPPU has 307 recognised research institutes, 612 affiliated colleges and 385 faculties.

Current international and industry collaborations

- Is the only university in India where an intake of 40 per

cent international students exists. Every year it receives more than 2,000 students from 103 countries, including Sri Lanka, Yemen, Somalia, Nigeria, Korea, Afghanistan

- The university has set up a separate building for its International Centre with a staff of 15 people. The International Centre also provides medical, insurance, student accommodation and English language courses to international students
- The university has successfully conducted projects with Canada, Germany and the USA.

Strategic imperatives and internationalisation strategy

- To develop strategic partnerships, a collaborative strategic culture and resources for research and innovation



Opportunities for partnership and partner selection criteria

- The university is interested in joint research, collaboration and publication, semester exchange, faculty and student exchange, development of curriculum and joint degrees
- The UK, the USA and countries in the European Union are the focus
- Would like to develop state partnership with public-funded and private universities
- The university has already developed a number of strategic partnerships in the USA and countries in the European Union.

Institute of Chemical Technology (ICT)

- ICT Mumbai enrolls 2,577 students and has 54 full-time faculty members.

Current international and industry collaborations

- The institute has student exchange programme partnerships with Ethiopia, faculty exchange and development programmes with Canada, the USA and Australia, and over 87 partnerships in the USA, Canada, Finland, Spain, France, UK, Australia, New Zealand and Turkey

- The institute is also offering joint degrees with Michigan State University, USA for PhDs in engineering streams.

Strategic imperatives and internationalisation strategy

- Research is integral and has created over 500 first-generation entrepreneurs
- Some universities in Canada, New Zealand, the UK and USA are keen to have split-degree and/or dual-degree programmes
- Recently, ICT has undertaken a major initiative on e-governance and digital learning
- Other major initiatives also include a partnership with the Department of Biotechnology for the DBT-ICT Centre for Energy Biosciences
- A doctoral fellowship nurtures excellence in research and teaching.

Opportunities for partnership and partner selection criteria

- ICT is keen to offer web-based courses and virtual centres of excellence with top universities
- It is also keen to train faculty and students in niche areas in collaboration with foreign universities and offer courses to students from the African countries and Asia Pacific region
- Preferred countries are

the USA, UK and Germany, but weight will be given to the reputation and ease of accessibility of the institute

- Interested in research and innovation related to nano-technology, biotechnology, pharmaceuticals, energy and environment, green technology, and twinning programmes in chemical engineering and technology, materials and pharmaceutical engineering.

Symbiosis International University (SIU)

- Established in 2002, SIU has established institutes across seven faculties
- The university enrolls 15,568 students and has 700 full-time faculty members.

Current international and industry collaborations

- Over 53 student exchange partnerships with France, Germany, Australia, Canada, the USA, Portugal, the Netherlands, Japan, Singapore and Ireland
- Faculty exchange and development initiatives with Germany, Australia, Japan, Singapore and the USA
- Research and innovation partnerships exist with Singapore, the USA, Japan, the UK, Germany and joint degrees with Germany and France

- Study India programmes and Summer Schools with Germany, the USA, Japan, Canada, Singapore, Australia, Oman and Japan.

Strategic imperatives and internationalisation strategy

- Symbiosis Society Foundation awards scholarships for international students and has funds to encourage outward student mobility for the Global Immersion Programme
- The university has established a Centre for Waste Management, Symbiosis Teaching Learning Resource Centre (STLRC), Centre for Entrepreneurship and Innovation, and the Symbiosis Centre for Research and Innovation (SCRI)
- Articulation agreements, joint research, branch campuses and collaborations are goals.

Opportunities for partnership and partner selection criteria

- SIU is seeking exchanges, twinning programmes, internships and research projects for students
- SIU is interested in faculty development programmes, teaching assignments, international conferences, scholar in residence and distinguished visiting scholar programmes
- Joint research, joint paper publications, mentoring junior faculty for conducting research, joint paper presentations at international conferences are also of interest
- SIU is keen to partner with China and South East Asia, Africa and the UK.

Narsee Monjee Institute of Management Studies (NMIMS)

- Established in 1981, NMIMS offers courses across management, technology, science, pharmacy, architecture, commerce and economics. Its business school is frequently ranked among the top ten business schools in India
- It has 10,675 students, 469 full-time faculty members and 200 visiting faculty.

Current international and industry collaborations

- NMIMS has relationships with major universities in the USA, UK, France, Australia, Spain and Israel for joint programmes, student

and faculty exchange and research partnerships for technology- and management-related areas

- NMIMS management admission test (NMAT) is now a global admission test owned and globally marketed by GMAC
- NMIMS has set up labs in partnership with major global companies and is in conversation with one of the world's top-ranked private universities for an institutional partnership.

Strategic imperatives and internationalisation strategy

- Approximately 30 per cent of the students to be from the world market by 2025 and 20 per cent of the faculty from the overseas market by 2030
- Create a publishing division for the development of digital media and products and encourage faculty to publish digitally
- Joint programmes and twinning degree programmes, faculty and student mobility.

Opportunities for partnership and partner selection criteria

- Joint research, publications, patents, seminars, etc. are the priority. Joint teaching and faculty development in India of partner schools of NMIMS is also an area of interest

- The priority countries include the USA, Singapore, UK and Germany.

Welingkar Institute of Management Development and Research

- Established in 1977, the Welingkar Institute is first among the management institutes to offer the Postgraduate Diploma in Management in new areas such as Retail, Family Managed Business, Business Design and Innovation, Rural Management, Healthcare Management, Media and Entertainment Management, and E- business
- The institute enrolls 1,070 students and has 87 faculty members. It was the first "A" Grade Business School to be awarded the ISO-9002.

Current international and industry collaborations

- Student exchange programmes exist with Israel, Sweden, France, Canada, Germany, Denmark, New Zealand and Australia
- Faculty are sent to Harvard University and the institute is also a Venture Mentoring Services partner with MIT Media Lab, USA
- Mumbai's first innovation lab for memetics is a hub of business ideas for the future

- The biggest 'Design Innovation Workshop', jointly presented by WeSchool and MIT Media Lab, USA saw 380 innovators from across India collaborating.

Strategic imperatives and internationalisation strategy

- International student and faculty mobility for learning, teaching, research, internships and job placements, and partnering with universities to develop combined intelligence and programmes in futuristic domain areas.

Opportunities for partnership and partner selection criteria

- Research and innovation in design/agri-business/ retail/healthcare and faculty exchange on a modular basis for a certain part of the academic year
- The institute is keen to work on collaborative programmes in the area of innovation and design, and is keen to develop a lab to encourage an 'idea-to-market' culture
- Providing programmes and opportunities for women in India
- Contributing towards intelligence and transformative strategies in at least two nation-building public projects every year

- Ranking, accreditation and Indian partners are important considerations and priority countries include Australia, China and Brazil, the Middle East, Singapore and developing nations.

Source: Institute website;
Response to questionnaire by
institute

20 http://censusindia.gov.in/2011census/censusinfodashboard/stock/profiles/en/IND027_Maharashtra.pdf

21 AISHE 2013–14: All India Survey on Higher Education 201314, Government of India, Ministry of Human Resource Development, Department of Higher Education, New Delhi (2015)

22 www.ibef.org/states/maharashtra.aspx

23 CII Annual Status of Higher Education (ASHE) of States and UTs in India, 2015

24 <https://www.timeshighereducation.com/world-university-rankings/2016/world-ranking#!/page/0/length/25>

25 [www.topuniversities.com/university-rankings/world-university-rankings/2015#sorting=rank+region="+country=96+faculty="+stars=false+search=](http://www.topuniversities.com/university-rankings/world-university-rankings/2015#sorting=rank+region=)

26 http://zeenews.india.com/news/education/maharashtra-governor-calls-for-innovation-in-higher-education_1543572.html

27 THE MAHARASHTRA PUBLIC UNIVERSITIES ACT (2011) Pathway for Transforming Higher Education Into a Socio-Economic Development Force, Report of Committee No. 2 set up by the Ministry for Higher and Technical Education, Government of Maharashtra under the Chairmanship of Professor (Dr) Arun Nigavekar November, 2011

28 Higher Education in Maharashtra: Preparing for the future: New Ideas & Pathways, July 2011, Anil Kakodkar

29 July 31, 2015 PRESS TRUST OF INDIA

30 <http://www.ibnlive.com/news/india/plans-afoot-to-transform-maharashtra-into-educational-hub-tawde-1028186.html>



THE NATIONAL CAPITAL TERRITORY (NCT) OF DELHI

The National Capital Territory (NCT) of Delhi – the national capital Delhi and the surrounding Gurgaon and Faridabad regions are known as the NCT. Situated in the northern part India, it is one of the fastest growing areas with the third highest enrolment in higher education.

Table 17: NCT of Delhi demographic and economic overview

Parameters	Details
Population (2011)	16.7 million ³¹
18-23 age group	2.1 million ³²
Gross State Domestic Product at constant price	Delhi is one of the fastest growing states of the country. At current prices, the gross state domestic product (GSDP) of Delhi was GBP 52.2 billion (US\$ 74.8 billion) in 2014–15. Between 2004–05 and 2014–15, the GSDP of the state grew at a compound annual growth rate (CAGR) of 12.8 per cent ³³
Scale and maturity of higher education system ³²	26 universities and total colleges around 188 (government/government aided/self-financing) provide general degree/engineering/technical/education, etc. Of the total colleges in the state, the top three specialisations are: i) General (55 per cent), ii) Engineering and Technology (ten per cent), and iii) Teacher Education (eight per cent) ³⁴ Enrollment by level latest data: PhD/M Phil - 1.55 per cent; PG/PG diploma - 13.54 per cent; UG/UG diploma - 84.92 per cent
Quality metrics ³²	Present GER is 43.1 (third highest in the country) Pupil–teacher ratio: 19:1 Number of colleges per 100,000 population (18–23 years) is nine, while average enrolment per college is 1,440 Two of the HEIs in NCT (Indian Institute of Technology, Delhi and University of Delhi) have been ranked by the <i>Times Higher Education</i> and QS World Rankings in recent years ^{35, 36}
Key institutions in the state	Central: Jawaharlal Nehru University, University of Delhi, Jamia Millia Islamia University and Indira Gandhi National Open University State: National Law University, Indraprastha Institute of Information Technology, Guru Gobind Singh Indraprastha Vishwavidyalaya and Ambedkar University Delhi (AUD) Private university: TERI University, OP Jindal University, GD Goenka University, Amity University, Shiv Nadar University and Ashoka University

Table 18: NCT of Delhi's strategic priorities for higher education

Strategic priorities	Details (Initiatives planned)
Access	Launched Higher Education and Skill Development Guarantee Scheme to provide collateral-free loan to students
Equity (any scholarships/ programmes)	Various scholarship schemes based upon merit, minority, Other backward class (OBC) taking place
Quality and excellence	<p>Consistently upgrading the curriculum</p> <p>Online administration and governance systems</p> <p>Adopting the concept of e-office</p> <p>Smart classrooms introduced in a few institutions with others to follow</p> <p>Quality staff recruited through Union Public Service Commission and mandatory faculty development training</p> <p>Support for research and innovation</p>
Employability	<ul style="list-style-type: none"> • Special budget provision made for Incubation Policy at state level to make Delhi a Start-up hub through establishment of incubation centres at institutional levels • Plans to set up a Science & Technology Park to house R&D units of Indian and MNC firms to serve as a knowledge hub in the National Capital Region • Launched Bachelors of Vocational Studies in nine Government Institutes of Technology, and establishing Delhi Skills University for facilitating youth of Delhi to upgrade their skills along with general education up to National Skills Qualification Framework Level 10 in vertically and horizontally flexible manner • National Skills Qualification Framework (NSQF) has been approved for adoption in educational, technical and higher education institutions of Delhi • Setting up new degree-level, diploma-level and certificate-level institutions for enhancing skill development opportunities for the youth of Delhi • Plans to set up Communication Skills Laboratories to develop e-learning material • Encouraging Technical institutions to partner with industry to eliminate the gap between practical working in the world of work and skill level of undergraduate students

Outbound student mobility: NCT sends a significant number of students to higher education institutions located in countries such as the USA, UK, many other European Countries and Australia. All major overseas education consultants have offices in Delhi and neighbouring Gurgaon to help outbound students from

the NCT region, and over 50 UK universities have set up country offices. The British Council and other agencies organise overseas education fairs in Delhi.

Inbound student mobility: As per 2010–11 enrolment, around six per cent of total foreign students in India choose the NCT Region as their study

destination³⁷. Most of the students come from neighbouring countries, from South East Asia, the Middle East and Africa.

Nineteen higher education institutes in NCT region were approached to provide information and, based on the responses received, we have showcased nine institutes here.

Table 19: Profiled higher education institutes from NCT of Delhi

No.	Institution	Year of Establishment	Fields
Central/Institutes of National Importance			
1	Indian Institute of Technology (IIT) Delhi	1961	Science and engineering, humanities and management
2	Jamia Millia Islamia University	1920	All faculties
3	Indian Institute of Foreign Trade (IIFT)	1963	Management
4	The Indian Agricultural Research Institute (IARI)	1905	Agriculture and social sciences
State/Deemed Institutions			
5	Ambedkar University (AUD)	2008	Bioscience, law and culture
6	Indraprastha Institute of Information Technology (IIIT)	2008	Science and engineering
Private Institutions			
7	Management Development Institute (MDI)	1973	Management
8	O.P. Jindal Global university	2009	Humanities and social sciences
9	GD Goenka University	2013	Law, architecture, management, and hospitality education

Indian Institute of Technology Delhi (IITD)

- IITD offers bachelor's, dual-degree bachelor-cum-master of technology and integrated master of technology and PhD programmes in basic sciences and interdisciplinary research in nano-science and nano-technology, biomedical sciences and bioengineering, etc
- It was ranked #179 in the QS World University Rankings in 2015 and at 38 in the QS Asian Rankings of 2014. According to *the Times Higher Education World University Rankings* in 2014, the university ranked 4th in top higher education institutions in India
- It has a student strength of around 8,000, and faculty and fellows are around 521.

Current international and industry collaborations

- IITD has 21 active MOUs with institutes across the USA, UK, Germany, Sweden, Israel, Russia, Japan, South Africa and Australia
- The Department of Textile Technology, Instrument Design and Development Centre, and Department of Management Studies have short programmes with the UK, USA and Ethiopia
- IITD has multiple bilateral research programmes with

the UK, Germany, Slovenia, Finland, Poland, Switzerland, the Netherlands, United Soviet Republic, European Union, and South Africa

- IITD's Technology Business Incubation Unit (TBIU) and Biotechnology Business Incubation Facility (BBIF) provide platforms for enabling research spin-offs and for techno-entrepreneurs to incubate their intellectual property into a business proposition.

Strategic imperatives and internationalisation strategy

- The institute has an International office to look after all international affairs and
- enhance visibility of the institute globally and attract more international students to the campus, from current 100 to 300 in five years.

Opportunities for partnership and partner selection criteria

- IITD is keen to expand its international collaborations portfolio further
- The top three countries for partnership would be Germany, France and the USA, though they have several ongoing partnerships with the UK funded by UKIERI
- Selection of international partners is based on alignment with the institute's strategic and research vision.

Jamia Millia Islamia University

- Jamia Millia Islamia University conducts programmes in humanities and languages, education and fine arts, social and natural sciences, engineering and technology, architecture, law and dentistry
- The total students are 16,693, of which 1.45 per cent are international.. Total faculty strength is 876.

Current international and industry collaboration

- The university has over 40 international MoUs for student and faculty exchanges and an internationally acclaimed international summer school where participants come from around 25 countries
- It has research collaborations in various streams at postgraduate and PhD level
- The university has a number of industry/corporate linkages and scholarships
- The centre for innovation and entrepreneurship gives students regular projects and internship opportunities to strengthen their employability
- Industry representatives are part of executive council, academic council, and the board of management of departments and centres.

Strategic imperatives and internationalisation strategy

- Jamia Millia has obtained national accreditation while international accreditation is being pursued alongside a choice-based credit system in UG and PG courses. New courses have been introduced in emerging areas and a community college and several vocational courses have been recently established
- Internationalisation is implemented through students and faculty exchange, collaborative research, courses in different foreign languages and summer schools for foreign students
- The university aspires to be among the top 500 global universities in the next few years.

Opportunities for partnership and partner selection criteria

- The university is keen to expand its student and faculty exchanges and development programmes, while bilateral research programmes and collaborations with overseas industries are also a priority
- The criteria for selecting international universities is reputation and well-established academic and research programmes, and the top three countries are

the USA, Japan/South Korea and the UK.

Indian Institute of Foreign Trade (IIFT)

- IIFT was set up in 1963 to be an academic centre of excellence in international business to deliver globally competitive business education, training and research. It is accredited as an “A” grade institute by NAAC
- Currently has around 1,100 students and around 70 faculty including 28 visiting faculty.

Current international and industry collaboration

- It supports student exchange programmes with France, Italy, Spain, the UK, Finland, the Netherlands, Germany, Geneva and Canada, joint degrees/twinning arrangements in Tanzania, and has strong tie-ups with industry
- IIFT conducts training programmes in international business for corporates, government officials, export and import agencies of various countries in Africa.

Strategic imperatives and internationalisation strategy

- To establish more collaborative programmes in international business,

and student and faculty exchanges beyond Europe, joint research activities and joint degree courses with leading business schools in the world. Develop wider participation with business schools in America, Australia and New Zealand, and the Far East.

Opportunities for partnership and partner selection criteria

- Keen to explore potential collaborations with overseas institutions for faculty exchange and development, visiting faculty, research and innovation, curriculum development, joint degrees/twinning arrangements
- Selection of international institutions is based on their reputation assessed by their international ranking, accreditation and area of specialisation, with top three priority countries being the USA, China and Japan.

Indian Agricultural Research Institute (IARI)

- IARI is India's premier national institute for agricultural research, education and extension
- Currently, the institute has 20 divisions, five multidisciplinary centres and offers programmes in 24 disciplines
- Of the 1,018 students, 4.32

per cent are international students

- IARI received Quality Management System Standard Certificate, NS-EN ISO 9001: 2008/ISO 9001:2008 of KVQA, and was given the Agriculture Leadership Award 2009 by national agriculture magazine, *Agriculture Today*.

Current international and industry collaboration

- IARI has linkages with developed and developing countries for student and faculty exchange, curriculum development, joint courses, and research and infrastructure set up in the UK, Nigeria, Afghanistan, Myanmar and the USA
- At present there are 44 international students from 14 countries, while research and innovation includes ten externally funded projects from international agencies
- IARI supports incubation and entrepreneurship through its Zonal Technology Management and Business Planning and Development (ZTM and BPD) Unit
- It utilises institutional governance (board participation, etc.) and has outreach programmes.

Strategic imperatives and internationalisation strategy

- Building globally competitive

human resource in frontier areas of agricultural science, technology and management

- The institute plans to establish offshore campuses in the near future, which will help in developing strong international links through postgraduate teaching and research, and build competence in the host country for higher growth in the agricultural sector
- IARI will establish an independent centre to build human resource for meeting the challenges of food and nutritional security
- Up-grading of faculty through exposure visits at international labs, and through training of master trainers, entrepreneurs and farmers
- Plans to increase the number of seats for international students from the existing 30 to 100s.

Opportunities for partnership and partner selection criteria

- Forge collaborations with advanced centres of research in other countries
- IARI supports the student exchange programmes and welcomes students from adjoining Asian countries, and encourages faculty to go abroad
- IARI has dual-degree

collaboration as well as twinning agreements

- The criteria are competence in the desired area and the individual institute's reputation, with top three countries being the US, UK and Australia.

Ambedkar University (AUD)

- AUD was established in 2008 and offers UG, PG and research programmes in all aspects of social science and humanities
- Total current student enrolment is 1,779, while faculty is 115.

Current international and industry collaboration

- AUD has multiple collaborations (student and faculty exchange and twinning arrangements) with institutes in the USA and European Union, and research/innovation collaborations with the USA, Norway and the UK.

Strategic imperatives and internationalisation strategy

- In the past two years, a number of programmes have been initiated, three centres have been opened, an *Internal Quality Assurance Cell* has been set up and AUD is planning to establish a Language Cell, strengthen

mentorship and tutorial system/summer orientation course and provide more scholarships

- There are plans to start new courses specially targeted at improving the research and industry-related skills of the students, while an Academic Teaching Development Programme will also be introduced
- The University plans to introduce new teaching and research programmes, and promote faculty research, especially in interdisciplinary themes.

Opportunities for partnership and partner selection criteria

- Student/faculty exchange and development, research and innovation, curriculum development, joint degrees and twinning arrangements
- The main criteria are the common academic interest of the AUD faculty and partnering institutions, reputation and recognition of the course.

Indraprastha Institute of Information Technology, Delhi (IIIT-D)

- IIIT-D aims to encourage innovation and entrepreneurship in specified domain areas
- It is currently offers UG, PG

and research in the area of computer science and electronics, electronics and computer engineering (ECE), computational biology (CB) and other related areas

- It has 1,000 students and 40 faculty for teaching and research.

Current international and industry collaboration

- IIIT-D has collaborations in the USA, Canada, Brazil, France, Germany, Spain, Australia and Korea. Most include student and faculty exchanges, and research partnerships
- It has joint degree programmes with Australia
- Experts from industry have been consulted on curriculum development and many visit as adjunct and guest faculty.

Strategic imperatives and internationalisation strategy

- To grow the campus and increase student strength to about 2,500 and faculty strength to 125
- Include interdisciplinary programmes and specialised master's courses, as well as increase the PhD programme
- Establish exchange and study-abroad programmes with leading universities for one semester or a year.

Opportunities for partnership and partner selection criteria

- IIIT-D supports the student exchange programmes, hosts visits and sabbaticals, is keen on joint degrees at PG level, and focuses on student mobility and research
- The criteria for selection is to identify universities that have a strong research programme and the top priority countries are the USA, UK/France/Germany/Switzerland and Australia.

Management Development Institute (MDI)

- MDI was established in 1973, has around 350 students and a faculty strength of 71
- It conducts doctoral, MBA and executive MBA programmes, is engaged in research and top-level executive education programmes and offers postgraduate programmes in power management
- MDI consistently ranks among the top ten business schools in India and was the first internationally accredited Indian Business School. It is accredited by the Association of MBAs (AMBA), UK.

Current international and industry collaboration

- It has collaborations with 60 academic institutions in 29 countries and most continents. The collaborations include student and faculty exchanges, faculty visits and research work
- It has four joint degrees and twinning arrangements with France and Germany
- 22 foreign students from partner schools attended MDI programmes through the student exchange programme in 2014–15, while MDI students also go abroad.
- More than 150 companies participate in placement processes with over 3,500 executives were trained last year
- An average of 50 companies approach MDI faculty each year for consultancy projects.

Strategic imperatives and internationalisation strategy

- Plans for AACSB and EQUIS accreditation, and institutional collaboration with top-ranking business schools, and creation of an International Advisory Board
- MDI aims to be a global business school, offering world-class research environments and

programmes to play a vital role in producing quality research and education.

Opportunities for partnership and partner selection criteria

- Collaborating with top-ranking business schools/ universities across the globe in research and innovation, engaging in exchange of ideas, organising joint research, joint conferences, workshops, seminars, round tables, etc.
- Overseas learning programmes, senior management programmes and advanced management programmes
- The criteria are that institutions should have established credentials in the fields of business and management education and be top ranked in their particular country and region, with the top three countries being the USA, UK and European countries.

O.P. JINDAL Global University (JGU)

- JGU was established in 2009 and has five schools and four institutes
- Faculty members have produced over 400 publications in academic and research journals/books and chapters in books

- Total student enrolment is 2,131 with faculty strength of 151.

Current international and industry collaboration

- JGU has established international collaborations with over 75 higher education institutions in Australia, China, the Middle East, Europe, Africa, and America
- Several industry-based, programme-based and scholarships are available for students
- The International Board of Advisors advise and support curriculum development
- The University has appointed faculty members from countries around the world including the USA and UK.

Strategic imperatives and internationalisation strategy

- The International Institute for Higher Education Research and Capacity Building has been established, while JGU also supports developing and neighbouring countries in their nation-building efforts
- JGU fosters global competencies among its students via summer schools semesters abroad and exchange programmes with leading universities
- JGU aims to send more faculty members on sabbaticals for a whole

semester or a year to other universities to develop new areas of research in collaboration with overseas partners

Opportunities for partnership and partner selection criteria

- Student exchange programmes, faculty exchange, development programmes and dual-degrees
- Collaborative research and the sharing of scholarly work.
- The top three preferred countries are the USA, UK and China.

GD Goenka University

- In 2013, GD Goenka University started its first UG programme in four departments and two PG programmes in management and fashion design. Over the past two years, it has added an additional five departments
- In 2015, the total student enrollment was 500, of which one per cent is international. Total faculty is 131.

Current international and industry collaboration

- The university has tied up with foreign institutes in Italy, France, Australia, the USA and UK

- The university has summer schools, short residencies for faculty and students, and study abroad programmes with credit transfers
- It has tie ups with the British Standards Institution (BSI) UK, National Stock Exchange (NSE), Lumax and KPMG.

Strategic imperatives and internationalisation strategy

- Impetus is on funded research activities that can be commercialised
- It has established a Quality Assurance and Enhancement Cell, introduced Interdisciplinary projects, Amalgamator courses and minor specialisations on the domain areas for students of all schools of the university. In addition, it has introduced internships for students and involved faculty members in consultancy assignments
- Current faculty exchanges with foreign institutes in Europe and the USA are hoped to be expanded further, with the aim to have three to five per cent foreign nationals as faculty members and involve about 10 per cent faculty members in exchanges.

Opportunities for partnership and partner selection criteria

- Student exchanges, joint research projects under

joint PhD supervision, and engagement in curriculum development

- Joint degrees, study semesters/years abroad with credit transfers and organising joint seminars/conferences/juries/student evaluation with partners abroad
- Partner selection is based on the reputation and expertise the partner brings, from a diversified portfolio of countries.

Source: Institute website; Response to questionnaire by institute

31 http://censusindia.gov.in/2011census/censusinfodashboard/stock/profiles/en/IND007_NCT%20of%20Delhi.pdf

32 AISHE 2013–14: All India Survey on Higher Education 201314, Government of India, Ministry of Human Resource Development, Department of Higher Education, New Delhi (2015)

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37 Status of International Students in India for Higher Education (2014), Unesco India Office and MHRD

CONCLUSION

Internationalisation of higher education has risen up in priority for the Indian government at national, state and institutional levels. All institutions interviewed were keen to expand their international engagement with focus on teaching, research and skill development. For many of the institutions UK is their country of choice after the USA for international collaborations, though many of the institutions said they would collaborate with any country willing to engage on an equal partnership basis to meet their expectations and where the benefits are clear. However, not all Indian HEIs have international offices with experienced staff to take forward the agenda. It would be useful in the long run for countries interested in engaging with Indian institutions to offer some support to get their systems, processes

and skilled human resource in place for internationalisation. This includes support to develop internationalisation strategies, training of staff, developing systems for credit transfers, quality assurance and accreditation.

Opportunities

- There is untapped potential, and all 43 institutions are interested in expanding their international engagement to include student and faculty mobility, curriculum development, joint teaching and research, joint conferences, workshops and seminars
- Technology is not being currently exploited, and Indian institutions are keen to develop and offer supported MOOCs and online courses in core and elective subjects
- Employability is a top priority for state governments as well as HEIs
- Research-intensive universities are keen to develop joint PhD supervision
- Top national institutions are interested in international faculty visiting their institutions and would like funding agencies to consider instituting Chair Professorships or Fellowships
- Summer teaching programmes where UK faculty could teach would be welcome by private and public HEIs
- Some institutions (e.g. IARI and IICB) are interested in commercialisation of research in agriculture and pharmaceutical sciences

- A number of private institutions are keen to engage in dual/joint degree/ twinning agreements with reputed international HEIs
- Interest in international engagement is not always backed with funding commitments especially in public institutions. Private institutions are extremely sensitive to cost implications for international engagement.

Partner selection

- Reputation of the institute comes ahead of country in selecting partner institutions. Most institutions would like to engage with institutions from more than one country
- USA, UK, Germany, Japan and Canada appear to be the favoured countries for engagement, though this may be related to governmental or institutional funding available

- Management institutions showed interest in Brazil, China and South East Asia, along with traditional developed countries.

Challenges

- Most top business schools in India already have student exchange programmes with international business schools, but find it challenging working with the UK due to semester scheduling at undergraduate level and duration of UK MBA at postgraduate level
- Most Indian HEIs do not have international offices, an internationalisation strategy or resources to back plans, so it takes time to understand their priorities and find the right match
- There is a shortage of trained staff that understand the motivation for internationalisation, partnership models and

regulatory frameworks to take forward the internationalisation agenda.

Funding

- Funding is in short supply in HEIs for internationalisation and often has to be raised internally
- Some institutions are proactively looking for external funding sources to take forward their internationalisation agenda. While funding is available for collaborative research through competitive bidding, there is little for other internationalisation activity such as faculty or student mobility programmes
- HEIs need to become more entrepreneurial in raising funds for internationalisation activities by exploring opportunities through alumni, corporate social responsibility, etc.

GLOSSARY

The following abbreviations can be found throughout this publication:

AACSB	Association to Advance Collegiate Schools of Business
AICTE	All India Council for Technical Education
AISHE	All India Survey of Higher Education
AMBA	Accelerated Masters In Business Administration
BEd	Bachelor of Education degree
BPEd	Bachelor of Physical Education degree
BRICS	Brazil, Russia, India, China and South Africa
CEMS	Global Alliance in Management Education
CII	Confederation of Indian Industry
CRISIL	Credit Rating Information Services of India Limited
CU	Calcutta University
DST	Department of Science and Technology
EU	European Union
GBS	Globsyn Business School
GDP	Gross Domestic Product
GER	Gross Enrolment Ratio
GoI	Government of India
GSDP	Gross State Domestic Product
HE	Higher Education
HEIs	Higher Education Institutes/Institutions
IBM	International Business Machines Corporation
ICSSR	Indian Council of Social Science Research
ICT	Information Communication Technology
IEST	Indian Institute of Engineering, Science and Technology
IICB	Indian Institute of Chemical Biology
IIM	Indian Institute of Management
IISER	Indian Institute of Science, Education and Research
IIT	Indian Institute of Technology
IOCL	Indian Oil Corporation Limited

IPCC	Intergovernmental Panel on Climate Change
ISEC	International Statistical Education Centre
ISI	Indian Statistical Institute
IT	Information Technology
JU	Jadavpur University
Ltd	Limited
MBA	Master of Business Administration
MCA	Master of Computer Applications
MHRD	Ministry of Human Resource and Development
MPhil	Master of Philosophy degree
MoU	Memorandum of Understanding
NAAC	National Assessment and Accreditation Council
OBC	Other Backward Class
ONGC	Oil and Natural Gas Corporation
PG	Postgraduate
PhD	Doctor of Philosophy degree
PVT	Private
QS	Quacquarelli Symonds
R&D	Research and Development
RUSA	Rashtriya Uchchatar Shiksha Abhiyan
SC	Schedule Caste
SINP	Saha Institute of Nuclear Physics
ST	Schedule Tribe
SYLFF	Sasakawa Young Leaders Fellowship Fund
TCS	TATA Consultancy Services
TEQIP	Technical Education Quality Improvement Programme
UG	Undergraduate
UGC	University Grants Commission
UKIERI	UK India Education and Research Initiative
UNESCO	United Nations Educational, Scientific and Cultural Organisation
USA	United States of America
USAID	United States Agency for International Development
VC	Vice-Chancellor
WBSHEC	West Bengal State Higher Education Council

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West Bengal

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Institutes

- Calcutta University (CU)
- Globsyn Business School
- Indian Institute of Technology (IIT – Kharagpur)
- Indian Statistical Institute – Calcutta (ISI)

- Indian Institute of Management – Calcutta (IIM-C)
- Indian Institute of Engineering Science and Technology (IEST)
- Indian Institute of Science, Education and Research (IISER)
- Indian Institute of Chemical Biology (IICB)
- Jadavpur University (JU)
- Presidency University
- Saha Institute of Nuclear Physics (SINP)
- St Xavier's College.

Andhra Pradesh

State Government

Ms Sumita Dewra, Principal Secretary, Department of Higher Education, Andhra Pradesh.

Institutes

- Andhra University (AU)
- Acharya Nagarjuna University
- Dr BR Ambedkar University, Srikakulam
- GITAM University

- Jawaharlal Nehru Technological University – Anantapur (JNTU A)
- Jawaharlal Nehru Technological University – Kakinada (JNTU K)
- Sri Padmavati Mahila Visvavidyalayam
- Vignan University.

Telangana

State Government

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Institutes

- Acharya NG Ranga Agricultural University (ANGRAU)
- BITS Pilani, Hyderabad
- Indian Institute of Technology, Hyderabad (IITH)
- Institute of Public Enterprises, Hyderabad
- Jawaharlal Nehru Technological University, Hyderabad (JNTUH)
- Nalsar University of Law
- University of Hyderabad.

Maharashtra

State Government

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Institutes

- Indian Institute of Technology Bombay (IITB)
- Tata Institute of Social Sciences (TISS)
- Savitribai Phule Pune University (SPPU)
- Institute of Chemical Technology (ICT)
- Symbiosis International University (SIU)
- Narsee Monjee Institute of Management Studies (NMIMS)

- Welingkar Institute of Management Development and Research.

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Institutes

- Indian Institute of Technology Delhi (IITD)
- Jamia Millia Islamia University
- Indian Institute of Foreign Trade (IIFT)
- Indian Agricultural Research Institute (IARI)
- Ambedkar University Delhi (AUD)
- Indraprastha Institute of Information Technology, Delhi (IIIT-D)
- Management Development Institute (MDI)
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