

Founded 1980

Indian Institutes of Technology (IITs)



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**President (2019/2020),
Singapore Institute of
Engineering Technologists**

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About the Speaker :

Prof (Dr) Sam Man Keong (岑文强)

CEng (UK/Ireland/Australia/India),

Chartered Builder (UK),

Chartered Construction Manager (UK),

Chartered Environmentalist (UK),

Chartered Quality Professional (UK),

Chartered Mathematician (UK),

Chartered Scientist (UK)

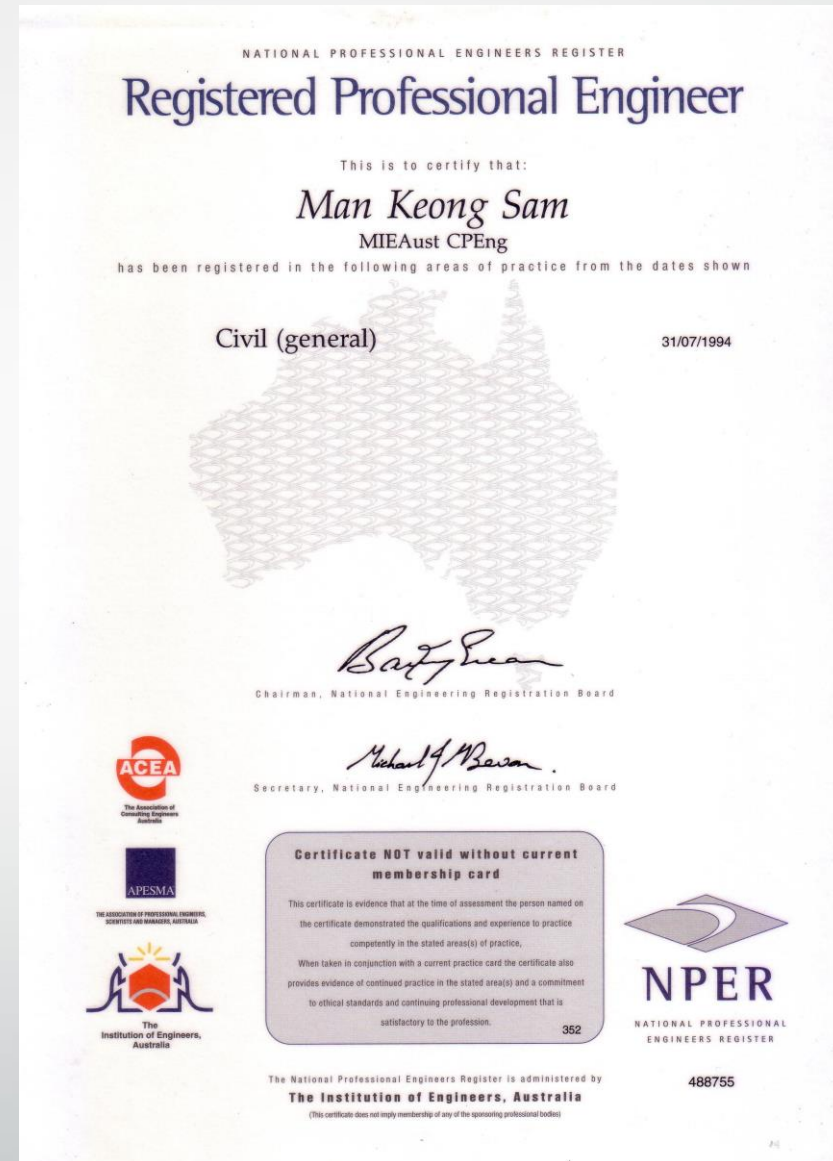


Singapore
Polytechnic
(SP)
[1971 - 1974]

- Diploma in Civil Engineering
- The **Society of Engineers**, UK : Part 2 (Design); Part 3 (Management → PEng(UK), MSE.
- **CEI Part 2** → CEng (UK), FIET, MICE, MIMMM

University of
Melbourne
[1982 – 1983]

- BE(Civil)(Hons)
- → 1987: CPEng, MIEAust
- → 1989: CEng, MIE(India)



THE INSTITUTION OF ENGINEERS AUSTRALIA



ENGINEERS
AUSTRALIA

Mr Man Sam

**Mr Man K Sam MIEAust CPEng
Chartered Professional Engineer**

COLLEGES: Civil

**REGISTRATION: National Professional
Engineers Register (NPER)**

**MEMBERSHIP NO:
488755**

The Institution of Engineers (India)

M. 54040



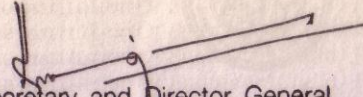
By virtue of Professional training, experience and Corporate Membership of this Institution

Sam Man Keong

is hereby authorised to use the style and title of

Chartered Engineer [India]

Dated this *12th* day of *July* 1989

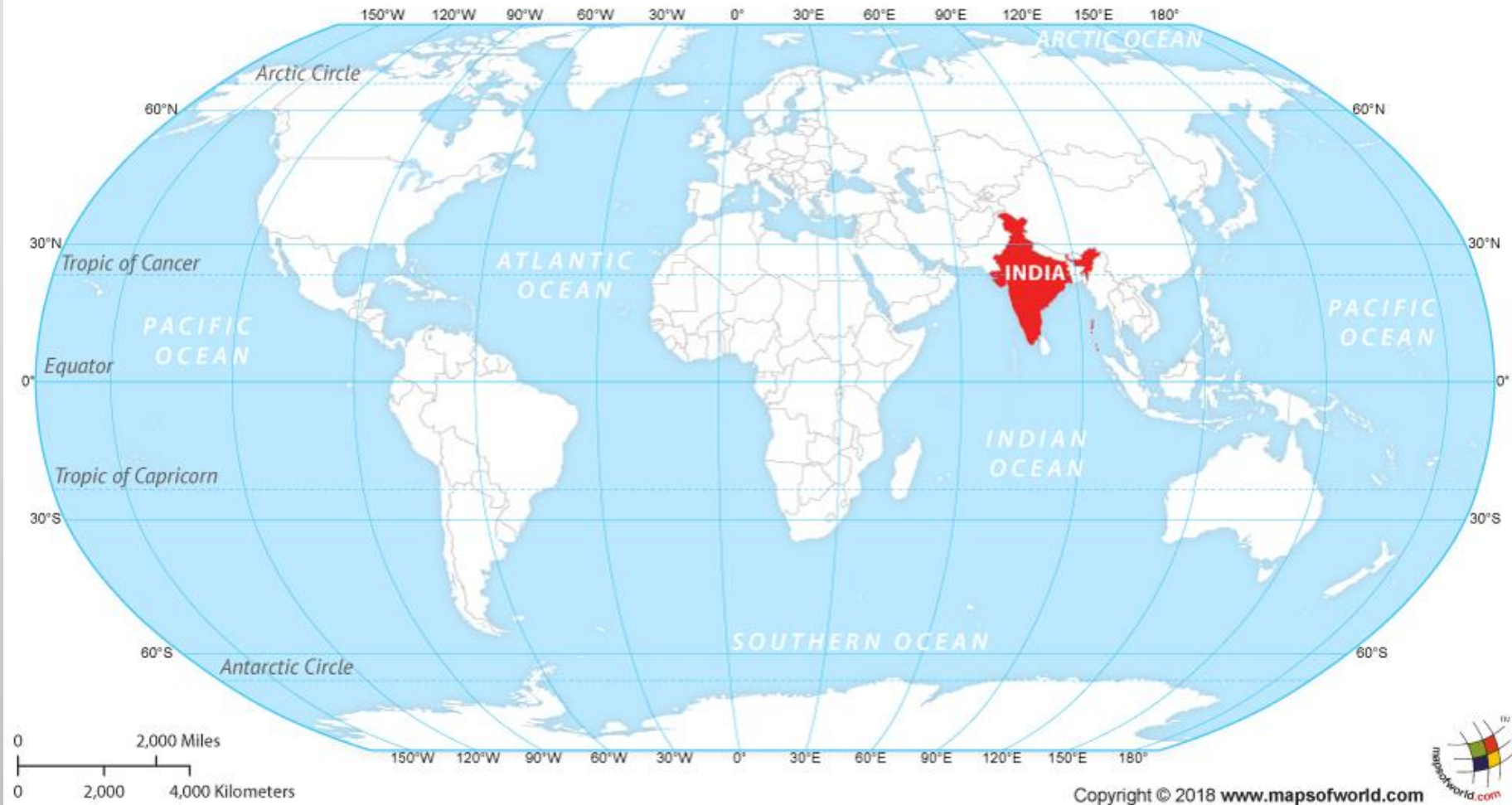

Secretary and Director General

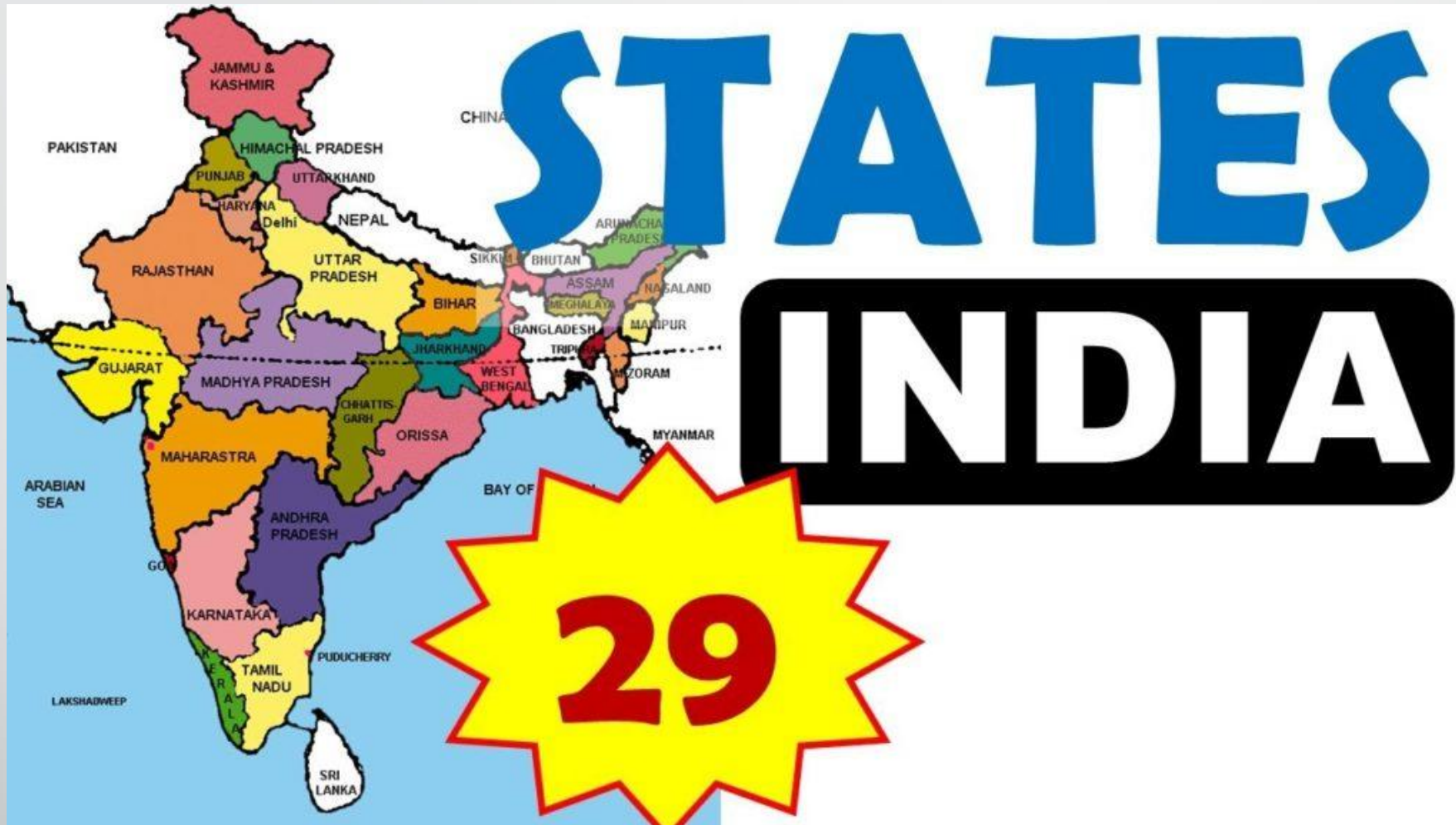
Outlines of Talk

1. Introduction
2. Some Major Cities in India
3. Education in India
4. Engineering Education in India
5. Indian Institutes of Technology (IITs)
6. Engineering Profession in India
7. IEA – Accords and Agreements
8. My Reflection



INDIA LOCATION MAP





India – Basic Factsi

| | |
|--------------------------|--|
| Area | 3,287,263 km ² |
| Population | 1,353,642,280 (2018 Estimate) |
| Density | 407.6/km ² |
| GDP (Nominal) per Capita | US\$2,338 |
| Languages | 447 |
| Largest City | Bombay (Mumbai) Area: 603 km ² Population: 12,578,447 |
| Capital | New Delhi (established: 1911) |

India – Brief History

| | |
|---|--|
| 1 | Pre-history era (until 3300 BC) |
| 2 | Bronze Age (3000 BC – 1000 BC): Indus Valley Civilization |
| 3 | Iron Age (1500 Bc – 200 BC): Buddhism and Jainism |
| 4 | Classic and Early Medieval Priods (200 BC – 1500AD): Gupta Empire (320 AD – 650 AD); Mauryan (Asokan). |
| 5 | Mid- Medieval Period (1200 AD – 1526 AD): Delhi Sultanate ; Vijayanagara Empire; Regional Powers. |
| 6 | Early Modern Empire (1526 AD-1858 AD): Mughal Empire ; Marathan and Sikhs; European explorations; East India Company rule in India . |
| 7 | Modern Period and Independence (1885 – 1947): Rebellion in 1857; British Raj (1858 – 1947); Indian Independence Movement (1885 – 1947); Independence and Partition (1947 – present) |



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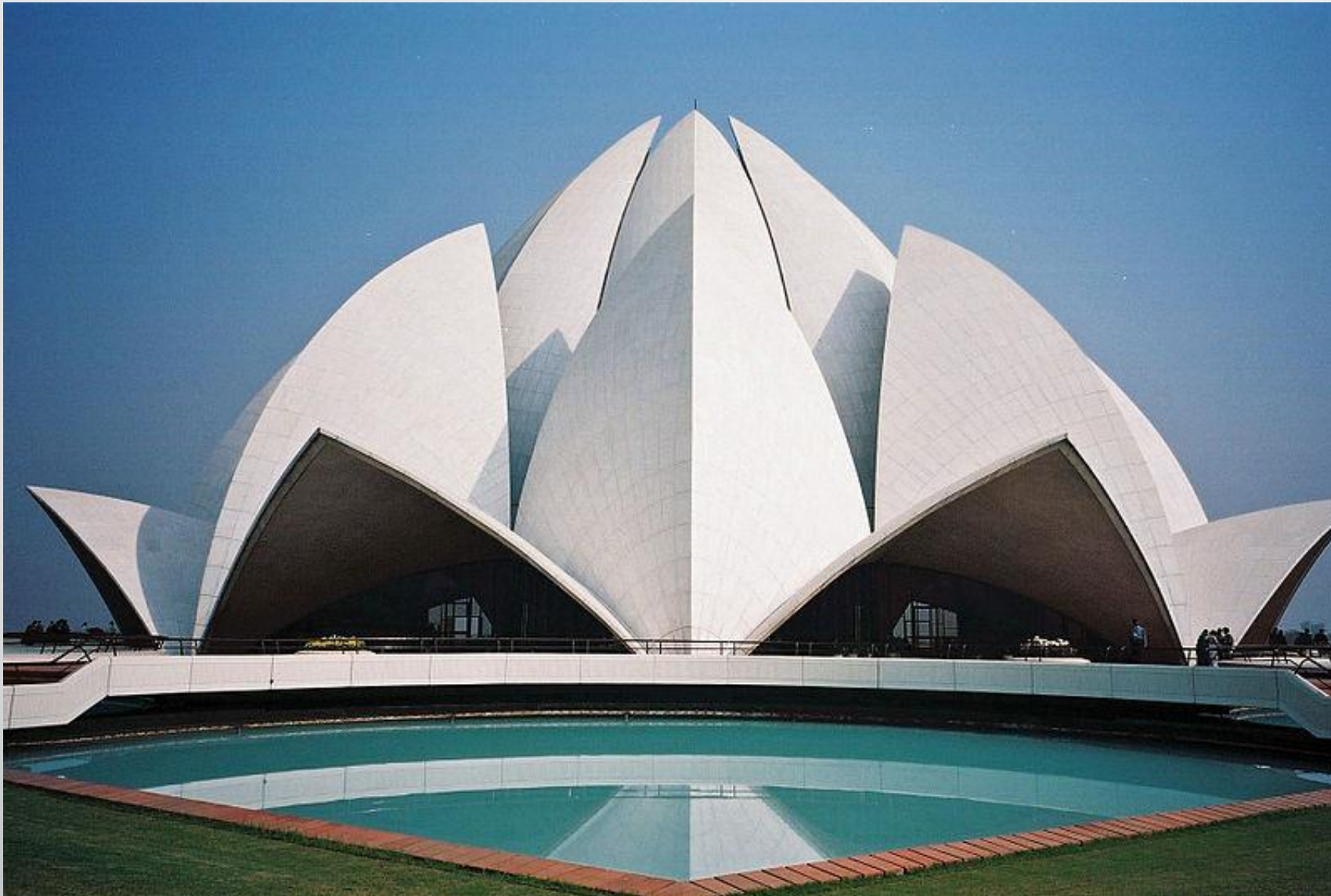


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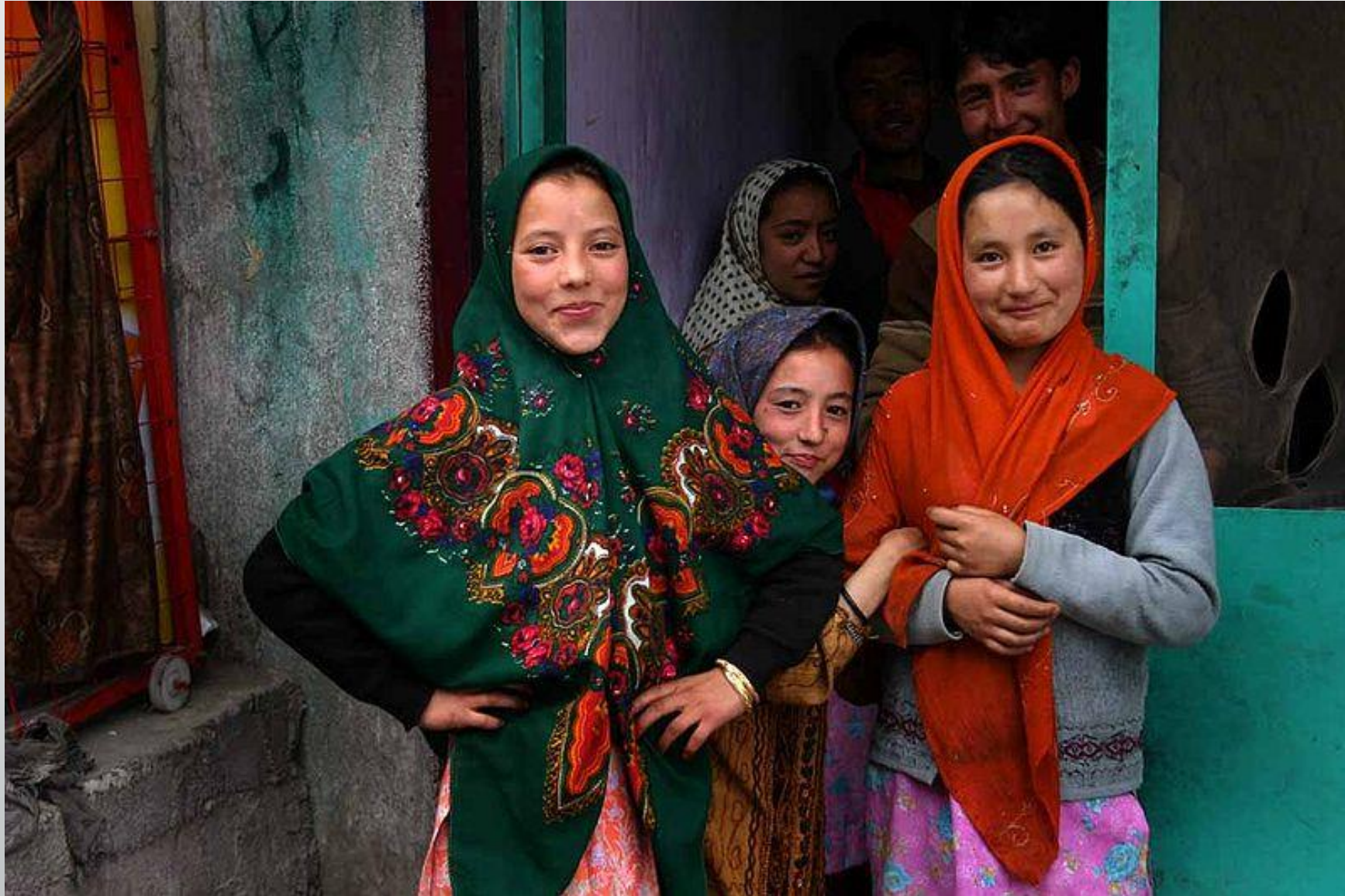
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2. Major Cities In India

Some Major Cities in India

| No | Name | Area (km ²) | Population ¹ |
|----|-------------------------|-------------------------|-------------------------|
| 1 | Bombay (Mumbai) | 603 | 12,478.447 |
| 2 | Delhi | 1484 (Union Territory) | 16,787.941 |
| 3 | Dhanbad | 577 | 1,162,172 |
| 4 | Kanpur | 403.70 | 2,767,348 |
| 5 | Kharagpur | 127 | 299,683 |
| 6 | Madras (Chennai) | 426 | 7,088,000 |
| 7 | Roorkee | | 273,502 |
| 8 | Varanasi | 163.8 | 1,201,815 |



Bombay (Mumbai)



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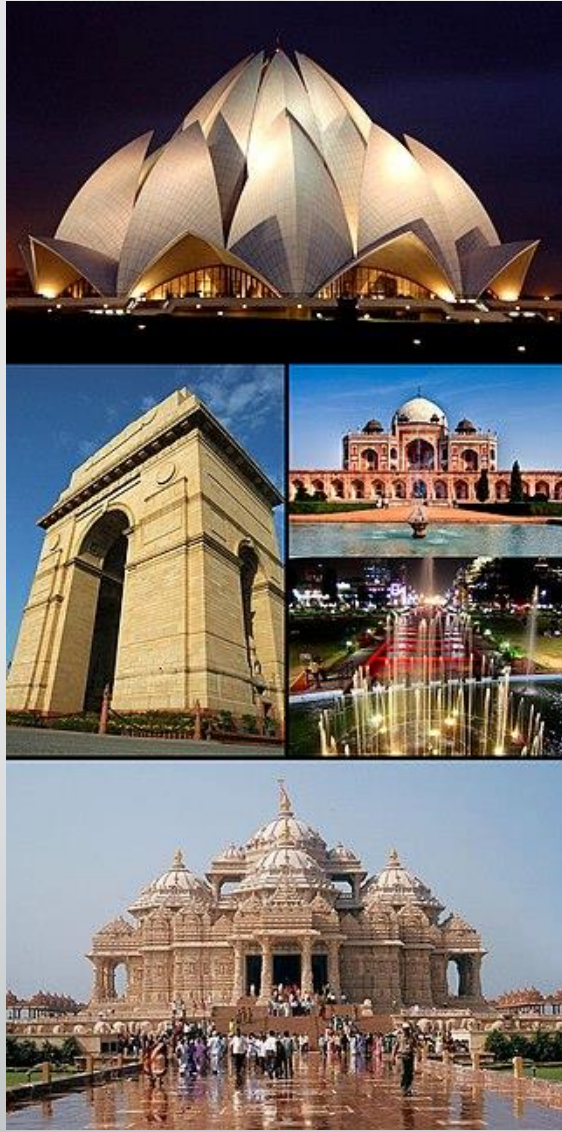
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सत्यमेव जयते

Government of the National
Capital Territory of Delhi

Delhi



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Madras (Chennai)



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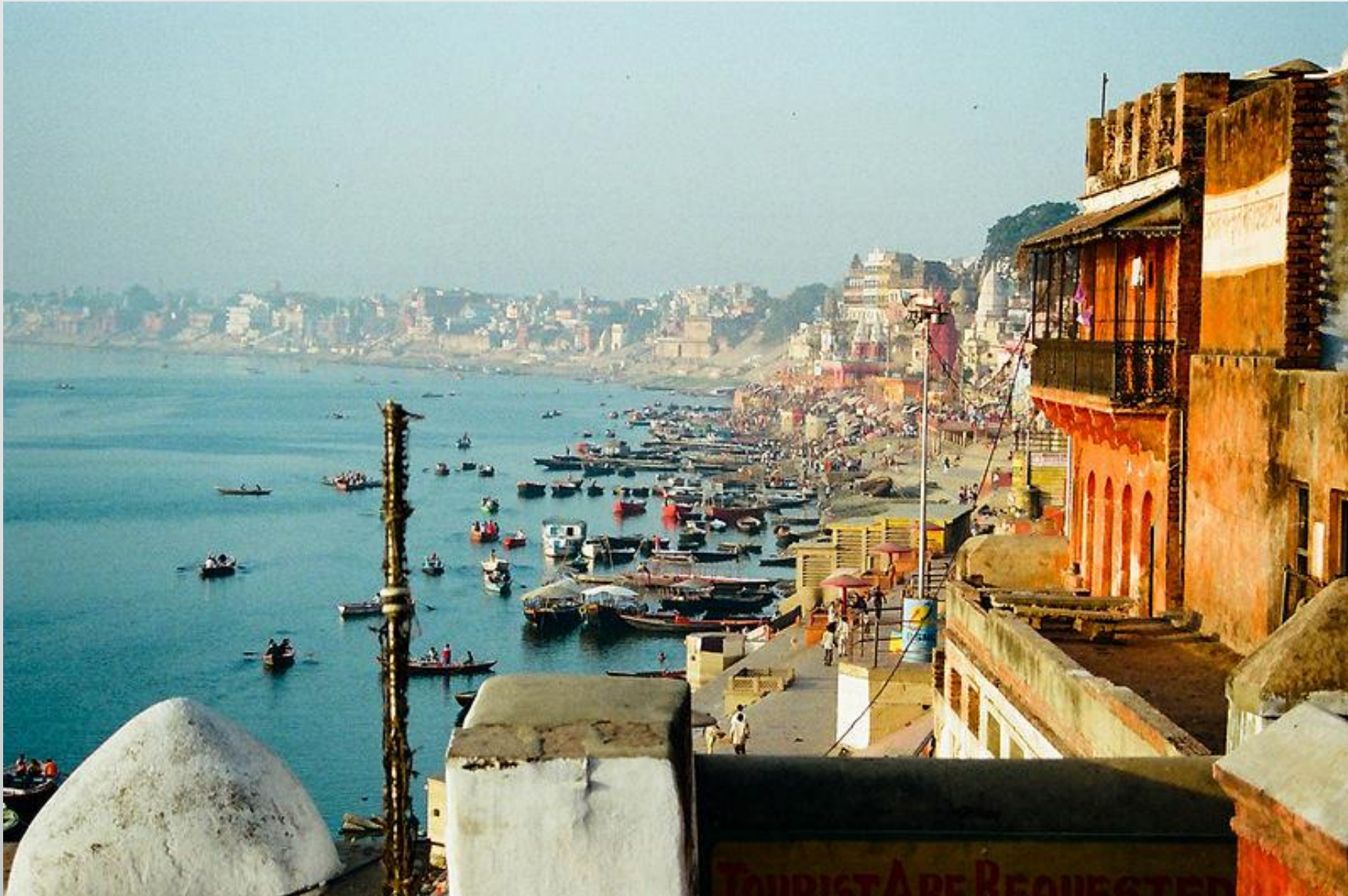
Varanasi



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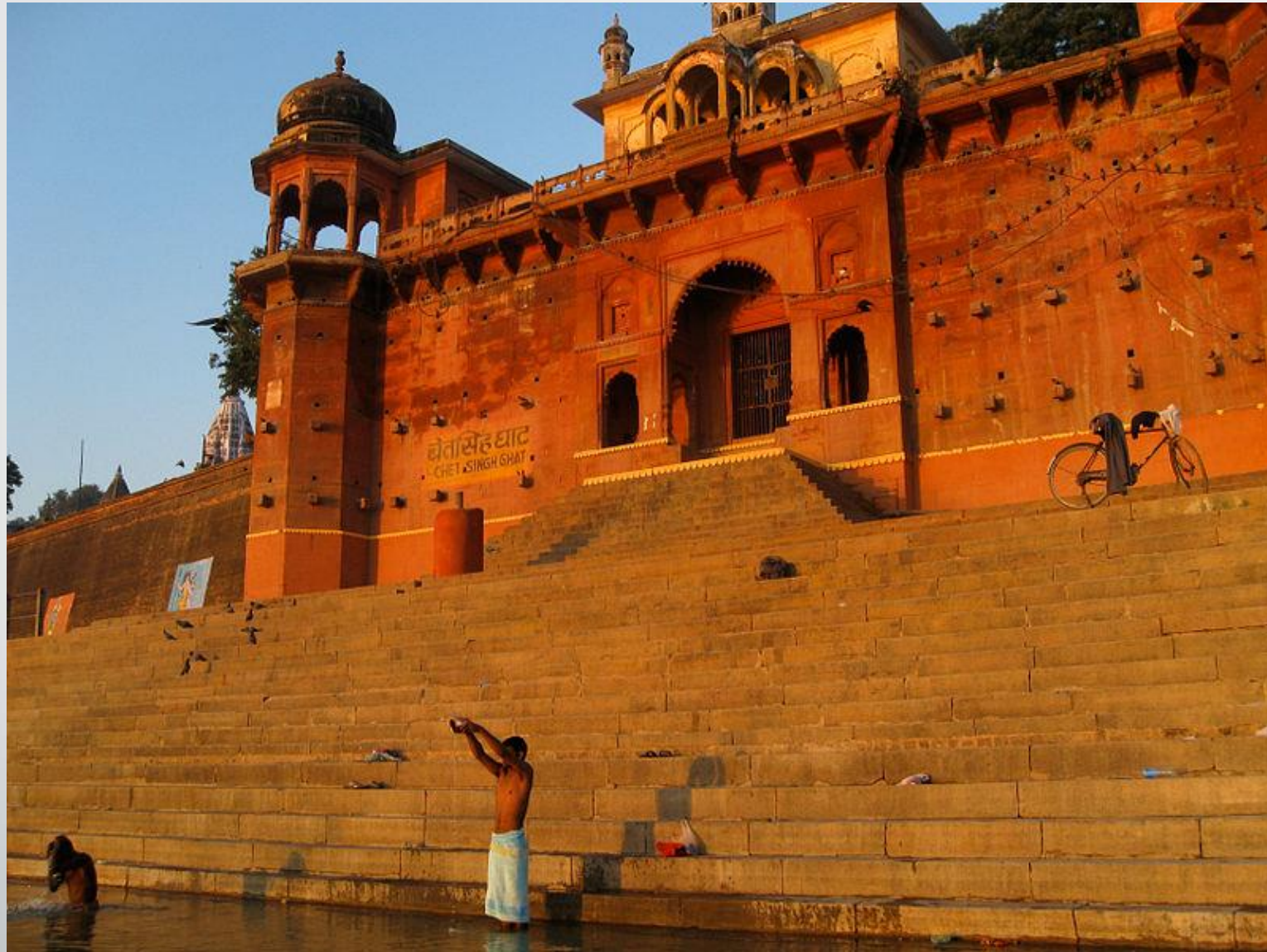
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Shiva as Lord of Dance (Shiva Nataraja)
India (Himalayas), Chola period,
ca. late 11th century
Copper alloy

present, world-famous form evolved
under the rule of the Cholas. Shiva's
dance is set within a flaming halo. The
god holds in his upper right hand the
damru (small drum that made the first
sounds of creation). His upper left hand
points to his raised left foot, signifying
refuge for the troubled soul. The energy
of his dance makes his hair fly to the
sides. The symbols imply that, through
belief in Shiva, his devotees can achieve



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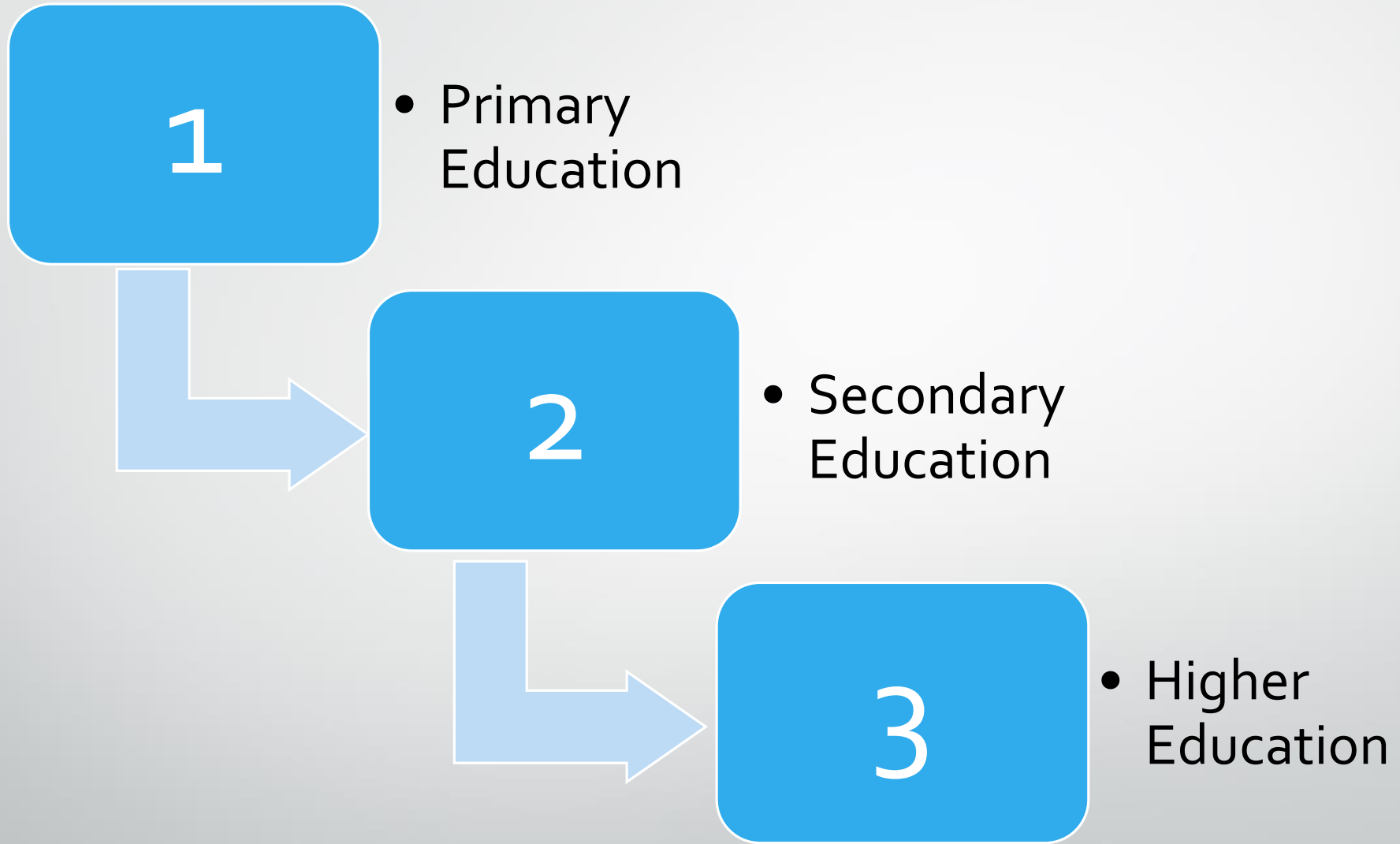


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3. Education In India



Higher Education

```
graph LR; A[Higher Education] --- B[Central Universities]; A --- C[State Universities]; A --- D[Deemed Universities]; A --- E[Private Universities];
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Central
Universities

State Universities

Deemed
Universities

Private
UNiversities

Private Universities with Engineering Degrees accredited by ABET-USA

| | |
|---|---|
| 1 | VIT (Vellore Institute of Technology)(1984) [Website: www.vit.ac.in] |
| 2 | SRM University (formerly SRM Institute of Technology)(1985) [Website: www.srmist.edu.in] |
| 3 | Thapar University (formerly Thapar Institute of Engineering and Technology) [Website: www.thapar.edu] |

Website: www.abet.org



4. Engineering Education In India

Bachelor of
Engineering/Bach
elor of Technology
[**B.E./B.Tech.**]
[4 years Full-Time]

National Institutes
of Technology (31)

Institutes of
Technology (23)

Universities

Some Universities offering Engineering Degrees in India

| Type | Name | Year Established |
|----------------------|---|------------------|
| Central Universities | University of Delhi | 1922 |
| State Universities | University of Calcutta | 1857 |
| | University of Madras | 1857 |
| | University of Mumbai | 1857 |
| Deemed Universities | Indian Institute of Science | 1909 |
| | Punjab Engineering College, Changigarch | 1921 |





University of
Calcutta (1857)



University of
Madras (1857)



University of
Mumbai (1857)





Some Indian Engineering Colleges before Independence (1947)

| No | Name | Year Established |
|----|---|------------------|
| 1 | College of Engineering Guindy, Madras | 1794 |
| 2 | Thomson College of Civil Engineering (University of Roorkee → IIT Roorkee) | 1847 |
| 3 | College of Engineering Pune, Pune | 1854 |
| 4 | Bengal Engineering College, Bengal | 1856 |
| 5 | College of Engineering Bihar, Patna | 1886 |
| 6 | Victoria Jubilee Technical Institute | 1887 |



College of Engineering,
Guindy (1794)



Thomson College of Civil
Engineering (1847)
(Now: IIT Roorkee)



5. Indian Institutes Technology (IITs)

The **Indian Institutes of Technology (IITs)** are premiere autonomous [public technical](#) and [research universities](#) located across India. They are governed by the [Institutes of Technology Act, 1961](#), which has declared them as [institutions of national importance](#) and lays down their powers, [duties](#), and [framework](#) for governance. The Institutes of Technology Act, 1961 lists **twenty-three institutes**. Each IIT is autonomous, linked to the others through a common council (IIT Council), which oversees their administration. The [Minister of Human Resource Development](#) is the [ex officio Chairperson](#) of the IIT Council. As of 2019, the total number of seats for undergraduate programs in all IITs is 13,376. The only major requirement to admit to these institutions at undergraduate and postgraduate level is to pass the [JEE Advanced](#) and [GATE](#) respectively.

Some Indian Institutes of Technology (IITs)

| No | Name | Year Established |
|----|--|----------------------|
| 1 | IIT Kharagpur [Website: www.iitkgp.ac.in] | 1951 |
| 2 | IIT Bombay [Website: www.iitb.ac.in] | 1958 |
| 3 | IIT Madras [Website: www.iitm.ac.in] | 1959 |
| 4 | IIT Kanpur [Website: www.iitk.ac.in] | 1959 |
| 5 | IIT Delhi [Website: www.iitd.ac.in] | 1961 |
| 6 | IIT Roorkee [Website: www.iitr.ac.in] | 2001 (Founded: 1847) |
| 7 | IIT (BHU) [Website: www.iitbhu.ac.in] | 2012 (Founded: 1919) |
| 8 | IIT (ISM) [Website: www.iitism.ac.in] | 2012 (Founded: 1926) |
| 9 | IIT Guwahati [Website: www.iitg.ac.in] | 1994 |

Recognition of IITs' Engineering Degrees in Singapore

Singapore : Professional Engineers Board

[Source: www.peb.gov.sg]

PROFESSIONAL ENGINEERS ACT (CHAPTER 253)

PROFESSIONAL ENGINEERS (APPROVED QUALIFICATIONS) NOTIFICATION 2009

| | | | | |
|-------|----|---|-------|-----------------------------------|
| INDIA | 1. | Indian Institute of Technology, Bombay | BTech | Civil Electrical Mechanical |
| | 2. | Indian Institute of Technology, Delhi | BTech | Civil Electrical Mechanical |
| | 3. | Indian Institute of Technology, Guwahati | BTech | Civil Electrical Mechanical |
| | 4. | Indian Institute of Technology, Kanpur | BTech | Civil Electrical Mechanical |
| | 5. | Indian Institute of Technology, Kharagpur | BTech | Civil Electrical Mechanical |
| | 6. | Indian Institute of Technology, Madras | BTech | Civil Electrical Mechanical |
| | 7. | Indian Institute of Technology, Roorkee | BTech | Civil Electrical Mechanical |

IIT's BTech in Civil Engineering

Recognized by PEB (Singapore)

is also Recognized
for registration

as

'Resident Engineer' under the
Building and Construction Authority (BCA)
in Singapore.

Source: https://www1.bca.gov.sg/docs/default-source/docs-corp-procurement/list_of_universities_for_re.pdf



IIT Kharagpur
(1951)

Website: www.iitkgp.ac.in

Indian Institute of Technology Kharagpur (IIT Kharagpur or IIT KGP) is a [public technical](#) and [research university](#) established by the [government of India](#) in 1951. It is the first of the [IITs](#) to be established and is recognised as an [Institute of National Importance](#). In 2019 it was awarded the status of [Institute of Eminence](#) by the government of India.

The institute was initially established to train scientists and engineers after India [attained independence](#) in [1947](#). However, over the years, the institute's academic capabilities diversified with offerings in management, law, architecture, *humanities, etc.* *IIT Kharagpur has an 8.5-square-kilometre (2,100-acre) campus and has about 22,000 residents.*

IIT Kharagpur is the 4th oldest technical institute in the [West Bengal](#) state after [Indian Institute of Engineering Science and Technology Shibpur](#) (established as B.E. College in 1856), [Jadavpur University](#) (established as Bengal technical institute in 1906) and [Rajabazar Science College](#) (established as [Calcutta University](#) campus for Science and Technology in 1914). When the first session started in August 1951, there were 224 students and 42 teachers in the ten departments of the institute.

Admission to undergraduate programmes in all IITs was tied to the [Indian Institute of Technology Joint Entrance Examination](#) (IIT-JEE). Candidates who qualify for admission through IIT-JEE used to apply for admission in four-year BTech (*Bachelor of Technology*), five-year BArch degree, five-year Dual Degree (Integrated [Bachelor of Technology](#) and *Master of Technology*) and five-year integrated MSc ([Master of Sciences](#)) courses at IIT Kharagpur.

Internationally, IIT Kharagpur was ranked 281 in the [QS World University Rankings](#) of 2020, 56 in Asia in 2020 and 23 among [BRICS](#) nations in 2019. It was ranked 401–500 in the world by the [Times Higher Education World University Rankings](#) of 2020, 59 in the Emerging Economies University Rankings of 2020^[61] and 32 in Asia in 2020.



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IIT Bombay
(1958)

Website: www.iitb.ac.in

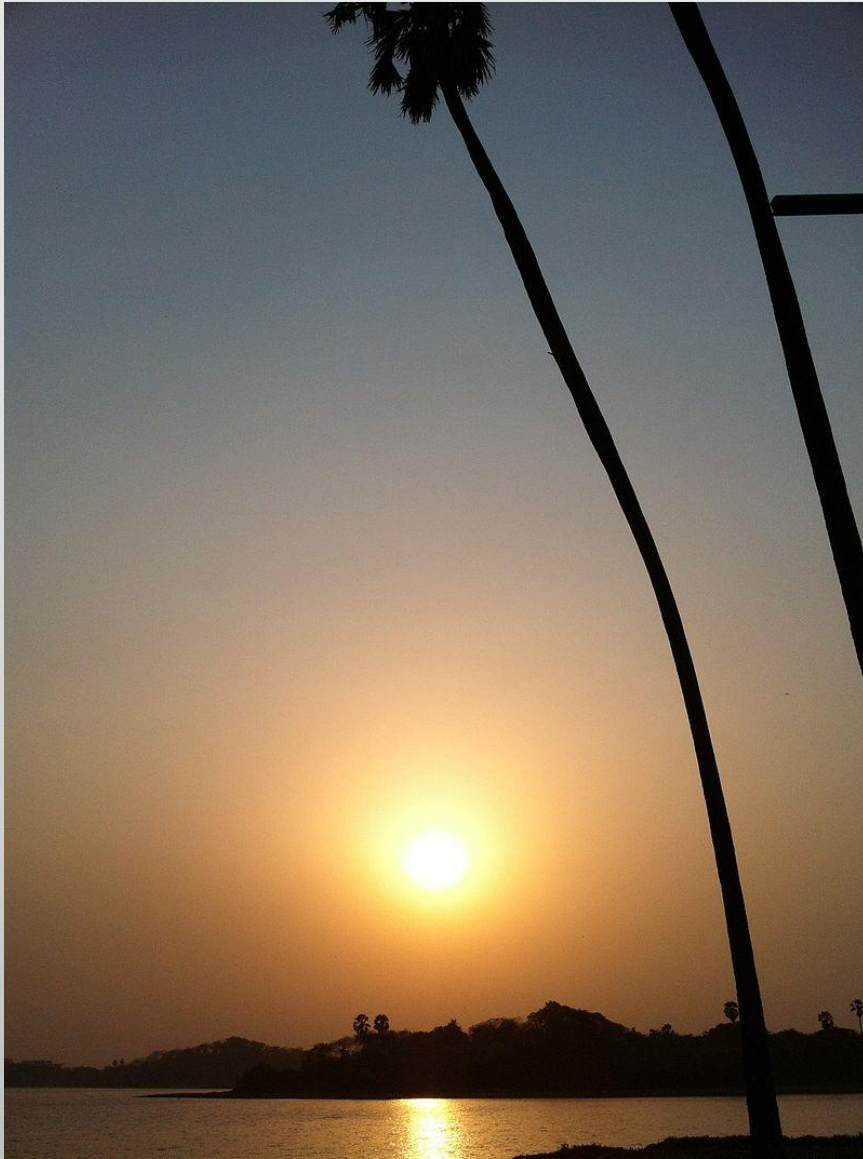
IIT Bombay was the second [Indian Institutes of Technology](#) to be established in 1958 with assistance from [UNESCO](#) and with funds contributed by the [Soviet Union](#). UNESCO agreed to provide equipment and technical experts mainly from the Soviet Union, while the Government of India accepted the responsibility for all other expenses including the cost of the building project and recurring expenses. The site chosen for the institute was [Powai](#) with an area of 550 acres (2.2 km²) which was given by the then [Bombay State](#) Government.

IIT Bombay is known for its 4 Year, 5 Year & 2 Year programmes for which the entry is through the [Joint Entrance Examination – Advanced](#) and [Graduate Aptitude Test in Engineering](#). It offers degrees such as: [Bachelor of Technology](#), Four Year [Bachelor of Science](#), Five Year [Master of Science](#), 2 or 3 Year [Master of Technology](#), and a few others. It also has a comprehensive graduate program offering doctoral degrees in Science, Technology, Engineering and Mathematics.^[7] It currently has a total of 15 academic departments, 20 centres, a school of excellence and four interdisciplinary programs including a Management Program.

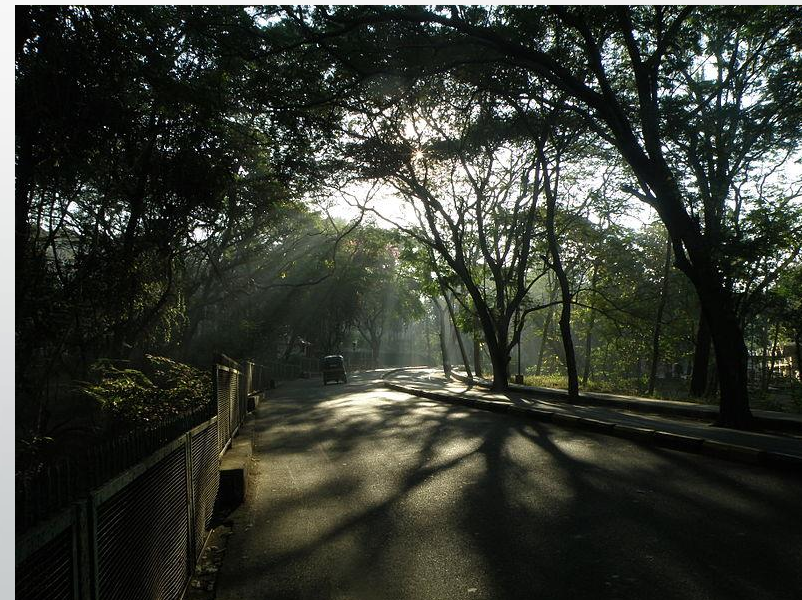


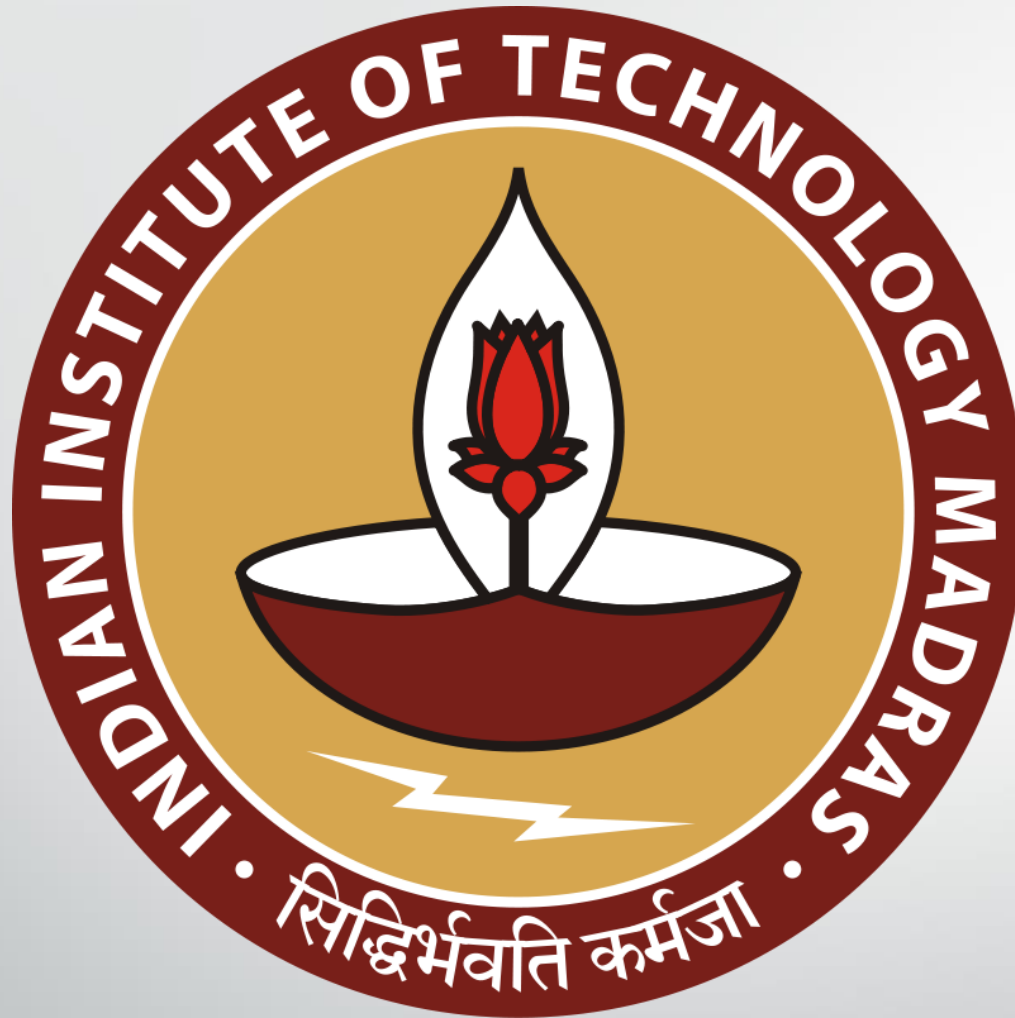


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IIT Madras
(1959)

Website: www.iitm.ac.in

Indian Institute of Technology Madras (abbreviated **IIT Madras** or **IITM**) is a [public technical](#) and [research university](#) located in [Chennai](#), [Tamil Nadu](#). As one of the [Indian Institutes of Technology](#) (IITs), it is recognised as an [Institute of National Importance](#). Founded in 1959 with technical and financial assistance from the former government of [West Germany](#), it was the third IIT that was established by the [Government of India](#). IIT Madras has been ranked as the top engineering institute in India for four years in a row (2016–2019) by the National Institutional Ranking Framework of the Ministry of Human Resource Development.

Internationally, IIT Madras was ranked 271 in the [QS World University Rankings](#) of 2020. The same rankings ranked it 50 in Asia in 2020 and 17 among [BRICS](#) nations in 2019. It was ranked 601–800 in the world by the [Times Higher Education World University Rankings](#) of 2020, 125 in ASIA and 63 among Emerging Economies University Rankings in 2020.



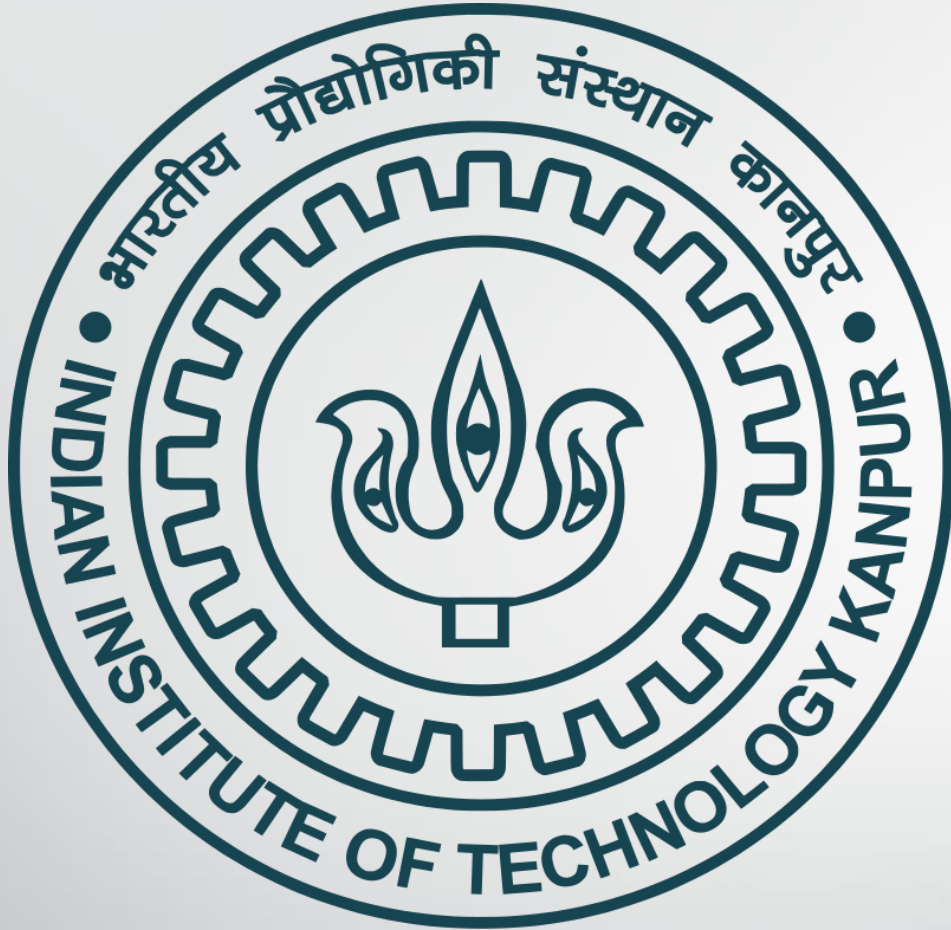
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IIT Kanpur
(1959)

Website: www.iitk.ac.in

Indian Institute of Technology Kanpur (also known as **IIT Kanpur** or **IITK**) is a [public technical](#) and [research university](#) located in [Kanpur, Uttar Pradesh](#). It was declared to be an [Institute of National Importance](#) by the [Government of India](#) under the [Institutes of Technology Act](#).

Established in 1960 as one of the first [Indian Institutes of Technology](#), the institute was created with the assistance of a consortium of nine US research universities as part of the Kanpur Indo-American Programme (KIAP).

Internationally, IIT Kanpur was ranked 291 in [QS World University Rankings](#) for 2020. It was ranked 65 in QS Asia Rankings 2020 and 25 among [BRICS](#) nations in 2019. The [Times Higher Education World University Rankings](#) ranked it 601–800 globally in the 2020 ranking 125 in Asia and 77 among Emerging Economies University Rankings 2020.



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IIT Delhi
(1961)

Website: www.iitd.ac.in

Indian Institute of Technology Delhi (abbreviated **IIT Delhi** or **IITD**) is a [public technical](#) and [research university](#) located in [Hauz Khas](#), [Delhi](#). It is one of the 7 old IITs in India.

Established in 1961, was formally inaugurated August 1961 by [Prof. Humayun Kabir](#), Minister of Scientific Research & Cultural Affairs.

The institute was later decreed in [Institutes of National Importance](#) under the Institutes of Technology Amendment Act, 1963 and accorded the status of a full University with powers to decide its own academic policy, to conduct its own examinations, and to award its own degrees.

Internationally, IIT Delhi was ranked 182 in the [QS World University Rankings](#) of 2020, the top-ranked university in India. The same rankings ranked it 43 in Asia in 2020 and 18 among [BRICS](#) nations in 2019. It was ranked 401–500 in the world by the [Times Higher Education World University Rankings](#) of 2020, 67 in Asia and 38 among Emerging Economies University Rankings in 2020.





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IIT Roorkee
(2001)(1847)

Website: www.iitr.ac.in

Indian Institute of Technology Roorkee (abbreviated **IIT Roorkee** or **IITR**), formerly **University of Roorkee** and **Thomason College of Civil Engineering**, is a [public technical](#) and [research university](#) located in [Roorkee](#), [Uttarakhand](#), [India](#). Established in **1847** in British India by the then lieutenant governor, [Sir James Thomason](#), it is the second oldest technical institution in Asia. It was given university status in 1949 and was converted into an [Indian Institute of Technology](#) (IIT) in 2001, thus becoming the seventh IIT to be declared. IIT Roorkee has 22 academic departments covering [Engineering](#), [Applied Sciences](#), [Humanities](#) & [Social Sciences](#) and [Management](#) programs with a strong emphasis on scientific and technological education and research.

IIT Roorkee has a strong entrepreneurial culture, with many alumni who have moved on to found technological and social ventures in India and abroad, and have played an important role in the development of India. Ten alumni have won the [Padma awards](#) and twenty-five alumni have won the [Shanti Swarup Bhatnagar Prize for Science and Technology](#).

Internationally, IIT Roorkee was ranked 383 in the [QS World University Rankings](#) of 2020. The same rankings ranked it 90 in Asia in 2020 and 47 among [BRICS](#) nations in 2019. It was ranked 501-600 in the world by the [Times Higher Education World University Rankings](#) of 2020, and 58 in Emerging Economies University Rankings in 2020.





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IIT (BHU)
(2012)(1919)

Website: www.iitbhu.ac.in

Indian Institute of Technology (Banaras Hindu University) Varanasi (abbreviated **Indian Institute of Technology (BHU) Varanasi** or **IIT (BHU) Varanasi**) is a [public technical](#) and [research university](#) located in [Varanasi](#), [Uttar Pradesh](#), India. Founded in 1919 as the Banaras Engineering College, it became the Institute of Technology, [Banaras Hindu University](#) in 1968. It was designated an [Indian Institute of Technology](#) in 2012. IIT (BHU) Varanasi has 16 departments, 3 inter-disciplinary schools and 1 Humanities & Social Sciences Section. It is located inside the [Banaras Hindu University](#) Campus, however is not dependent on it.



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IIT (ISM)
(2016)(1926)

Website: www.iitism.ac.in

Indian Institute of Technology (Indian School of Mines) Dhanbad (abbreviated **Indian Institute of Technology (ISM) Dhanbad** or **IIT (ISM) Dhanbad**) is a [public technical](#) and [research university](#) located in [Dhanbad](#), India. It is an [Institute of National Importance](#). IIT (ISM) has 18 academic departments covering [Engineering](#), [Applied Sciences](#), [Humanities](#) and [Social Sciences](#) and [Management](#) programs. It was formerly known as **Indian School of Mines** before its conversion into an [Indian Institute of Technology](#) (IIT).

IIT (ISM) is located in the mineral-rich region of India, in the city of [Dhanbad](#). It is the third oldest institute (after [IIT Roorkee](#), and [IIT \(BHU\) Varanasi](#)) which got converted into an IIT. It was established by [British Indian Government](#) on the lines of the [Royal School of Mines](#) - [London](#), and was formally inaugurated on 9 December 1926 by [Lord Irwin](#), the then [Viceroy of India](#). It started as an institution to impart education in mining and geology, and today, has grown into a technical institution with various academic departments. IIT (ISM) admits its undergraduate students through [Joint Entrance Examination \(Advanced\)](#), previously [IIT-JEE](#).

Internationally, **IIT (ISM) Dhanbad** ranked 173 among [BRICS](#) nations in the [QS World University Rankings](#) of 2019, 801-1000 globally by the [Times Higher Education World University Rankings](#) of 2020, 201-250 in Asia Rankings 2020 and 251-300 in Emerging Economies Rankings 2020.



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IIT Guwahati
(1994)

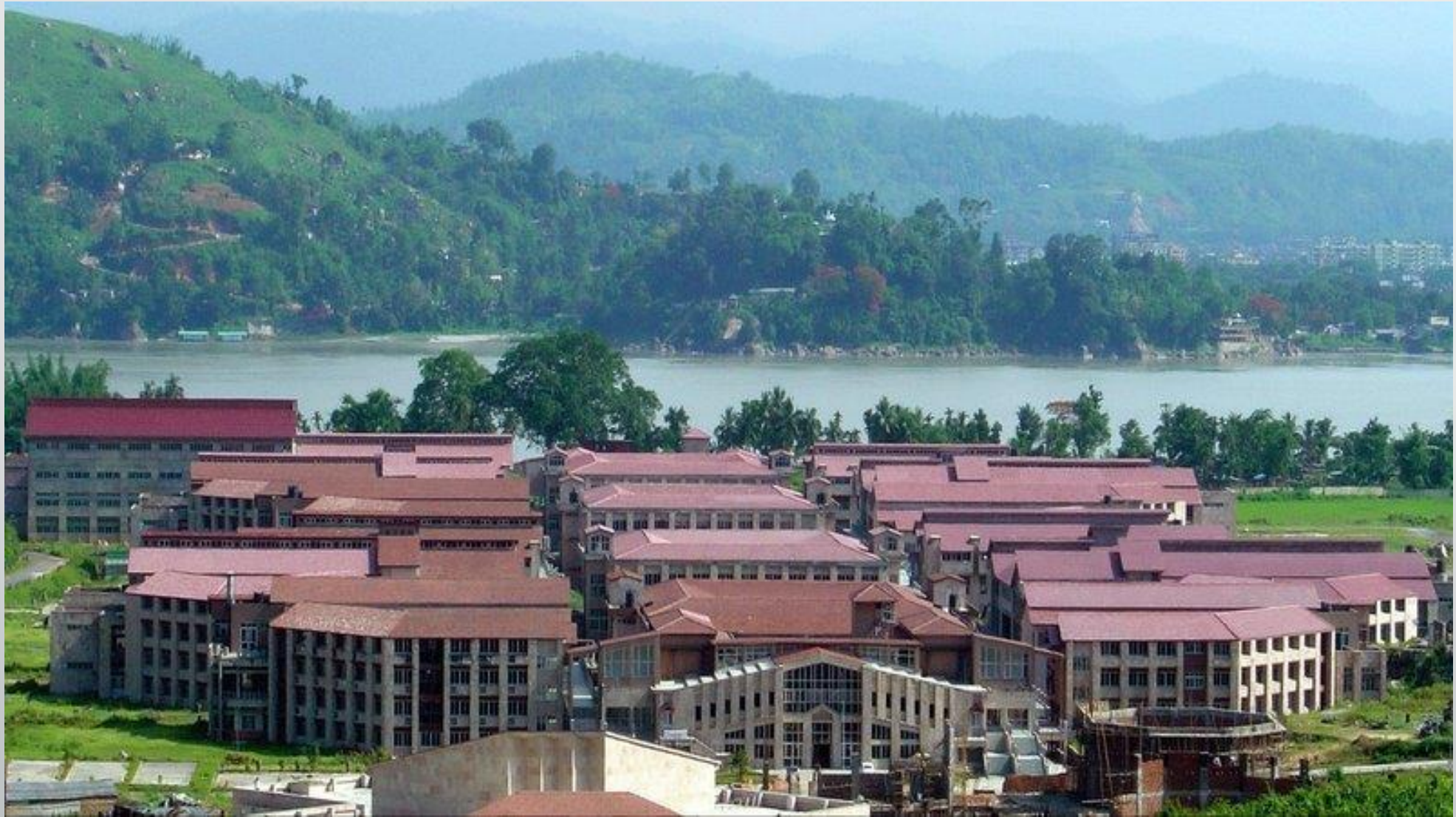
Website: www.iitg.ac.in

Indian Institute of Technology Guwahati (IIT Guwahati, IITG) is a [public technical](#) and [research university](#) established by the [Government of India](#), located in [Guwahati](#), in the state of [Assam](#) in [India](#). It is the sixth [Indian Institute of Technology](#) established in India. IIT Guwahati is officially recognised as an [Institute of National Importance](#) by the government of India. [\[5\]](#)[\[6\]](#) IIT Guwahati has been ranked 7th both in Engineering and Overall category in NIRF India Rankings 2020, released on 11th June 2020.

Internationally, IIT Guwahati was ranked 491 in the [QS World University Rankings](#) of 2020. The same rankings ranked it 112 in Asia in 2020 and 48 among [BRICS](#) nations in 2019. It was ranked 601-800 in the world by the [Times Higher Education World University Rankings](#) of 2020, 160 in Asia and 152 among Emerging Economies in 2020.



Engineering Education- IITs - INdia - 15 September 2020



Engineering Education- IITs - INdia - 15 September 2020



Engineering Education- IITs - India - 15 September 2020

6. Engineering Profession In India



Engineering Council Of India (ECI)

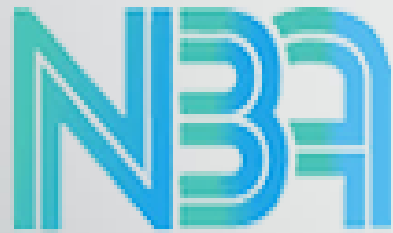
Engineering Council of India (ECI)

is an apex body of engineering associations in [India](#). It was established on 4 April 2002, as the Apex Body of engineering profession in India, by coming together of a large number of Professional Organizations /Institutions of Engineers to work for the advancement of engineering profession in various disciplines and for enhancing the image of engineers in society, by focusing on quality and accountability of engineers. Headquarters of ECI is at [New Delhi](#), India. Today there are 40 members, which includes 8 Government Departments and 32 Indian Engineering Professional Associations/ Institutions representing



Website: www.aicte-india.org
(1945)

The **All India Council for Technical Education (AICTE)** is the statutory body and a national-level council for technical education, under [Department of Higher Education](#), [Ministry of Human Resource Development](#). Established in November 1945 first as an advisory body and later on in 1987 given statutory status by an Act of Parliament, AICTE is responsible for proper planning and coordinated development of the [technical education](#) and [management education](#) system in [India](#). The AICTE [accredits](#) postgraduate and graduate programs under specific categories at Indian institutions as per its charter.

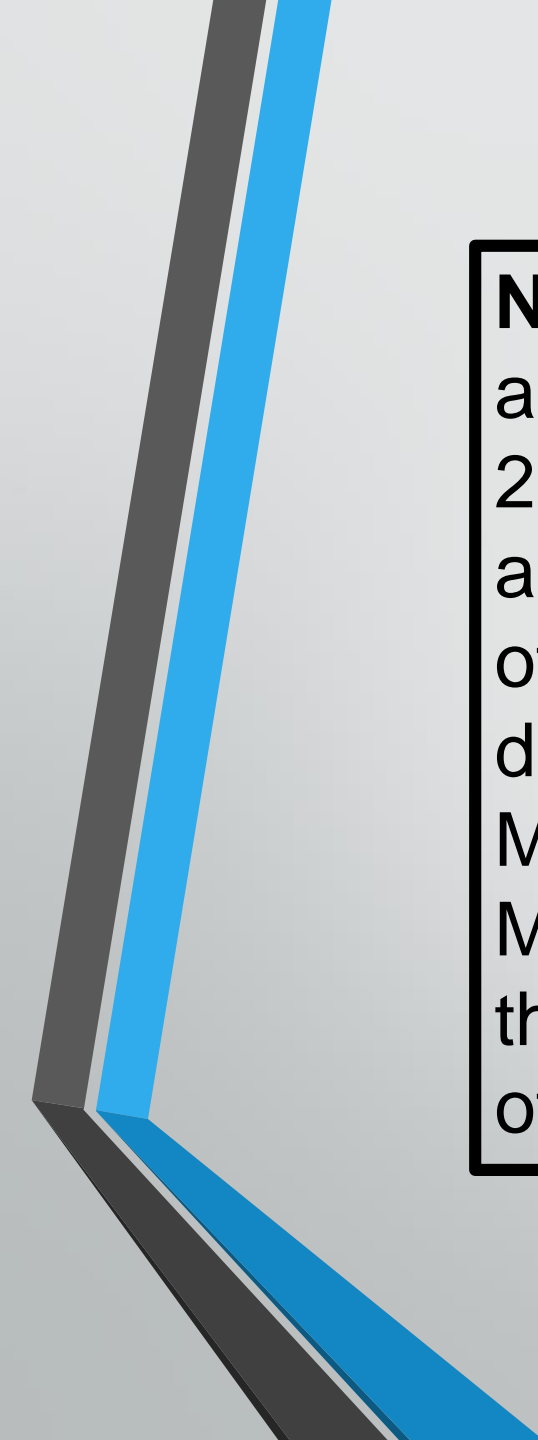


NATIONAL BOARD OF ACCREDITATION

PROMOTING INTERNATIONAL QUALITY STANDARDS FOR TECHNICAL EDUCATION IN INDIA

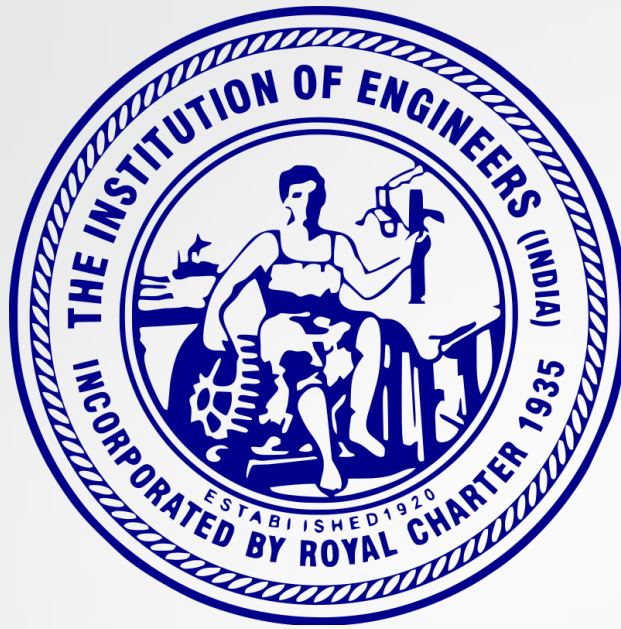
Website: www.nbaind.org
(1994)

The **National Board of Accreditation** (NBA), India was initially established by the AICTE (All India Council of Technical Education) under section 10(u) of AICTE Act, in the year 1994, in order to assess the qualitative competence of the programs offered by educational institution from diploma level to post-graduate level in engineering and technology, management, pharmacy, architecture and related disciplines, which are approved by AICTE



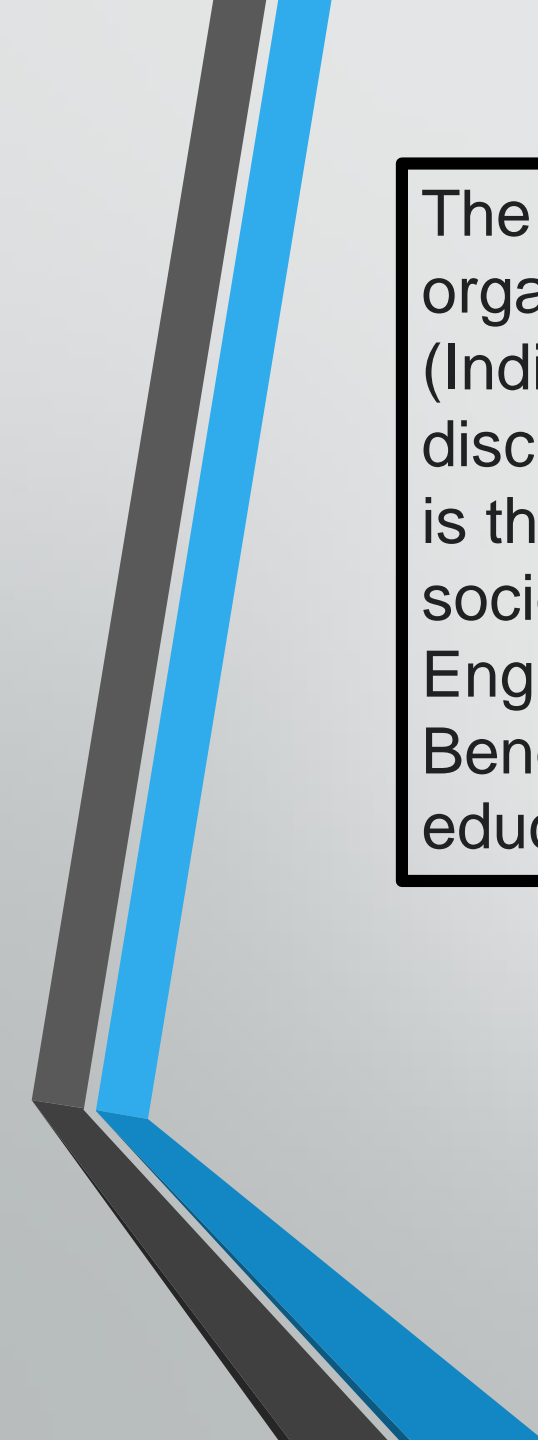
NBA came into existence as an independent autonomous body with effect from 7th January 2010 with the objectives of assurance of quality and relevance to technical education, especially of the programs in professional and technical disciplines, i.e., Engineering and Technology, Management, Architecture, Pharmacy and Hotel Management and Catering Technology, through the mechanism of accreditation of programs offered by technical institutions.

NBA is a
Full Signatory of the
Washington Accord
In 2014



Institution of Engineers (India)

Website: www.ieindia.org (1920)



The **Institution of Engineers** (India) is the national organization of engineers in India. The Institution of Engineers (India) has more than one million members in 15 engineering disciplines in 125 centers or chapters in India and overseas; it is the world's largest multi-disciplinary engineering professional society in engineering and technology world. The Institution of Engineers (India) was established in 1920 in Kolkata, West Bengal and is acclaimed to have pioneered non-formal education in engineering.

The Institution of Engineers (India) conducts an **examination** of its associate membership. This examination is considered to be on par with B.E. / B.Tech. When contemplated as an eligibility qualification to write competitive examinations like the Indian Civil Service, Indian Engineering Services, GATE, etc., and for employment in Government, public and private sectors in India. This qualification is recognized by the Ministry of HRD, government of India, as **equivalent to B.E./B.Tech.**

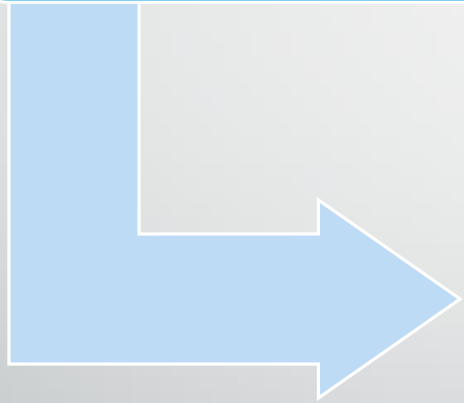
AMIE is also recognized by **UK-NARIC** as British bachelor's honours degree. AMIE is also recognized by **FCSA** Foreign credential service of America as equivalent to bachelor's degree in engineering.

The AMIE examination has two sections: **Section A** is common to all candidates, while **Section B** is specific to a particular stream of engineering. To take the examinations, the candidate must have been a technician member of the IEI for a year. Examinations are held twice yearly.



- Common Subjects

AMIE
Examination
(since 1928)



- Specialisations

```
graph TD; AMIE[AMIE] --> MIE[MIE]; MIE --> FIE[FIE];
```

AMIE

- AMIE Exam or BE/BTech
- Minimum Age: 21 yrs old
- Formerly Grad.IE

Corporate
Membership of
IEI

MIE

- Experience: At least 8 years in professional engineering works of relevant responsibility

FIE

- Experience: At least 15 years in professional engineering works at senior position.



The Institution of Engineers (India)

M. 54040



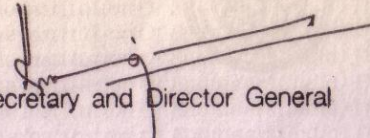
By virtue of Professional training, experience and Corporate Membership of this Institution

Sam Man Keong

is hereby authorised to use the style and title of

Chartered Engineer [India]

Dated this *12th* day of *July* 1989


Secretary and Director General

7. International Engineering Alliance (IEA)

Website: www.ieagreements.org

The **International Engineering Alliance (IEA)** is a global not-for-profit organisation, which comprises members from 41 jurisdictions within 29 countries, across seven international agreements. These international agreements govern the recognition of engineering educational qualifications and professional competence.

Through the **Educational Accords and Competence Agreements** members of the International Engineering Alliance establish and enforce internationally benchmarked standards for engineering education and expected competence for engineering practice.

International Engineering Alliance (IEA) - **Accords**

| | | |
|----------|--------------------------|--|
| 1 | Washington Accord (1989) | Accrediting Engineering Degree Programmes |
| 2 | Sydney Accord (2001) | Accrediting Engineering Technology Academic Programmes |
| 3 | Dublin Accord (2002) | Required Educational Base for Engineering Technicians |

India: Represented by National Board of Accreditation. [Website: www.nbaindia.org]

International Engineering Alliance (IEA) - Agreements

| | | |
|----------|------|---|
| 1 | IPEA | International Professional Engineers [IntPE]* |
| 2 | IETA | International Engineering Technologists |
| 3 | AIET | International Engineering Technicians |

India: Represented by the Institution of Engineers, India. [Website: www.ieindia.org]

Washington Accord

<https://www.ieagreements.org/accords/washington/>

| Year | Agreement | Qualification | Practitioner |
|------|---------------------------------------|---|--------------|
| 1989 | The Washington Accord | An accredited engineering degree [Now: BEng(Hons)] | Engineer |
| 2001 | The Sydney Accord | National Diploma in Engineering [Now: Bachelor Degree] | Technologist |
| 2002 | The Dublin Accord | National Certificate in Engineering [Now: Higher Certificate] | Technician |

The **Washington Accord** is an international accreditation agreement for [undergraduate professional engineering academic degrees](#) between the bodies responsible for accreditation in its signatory countries and regions. Established in 1989, the full signatories as of 2018 are [Australia](#), [Canada](#), [China](#), [Hong Kong](#), [India](#), [Ireland](#), [Japan](#), [Korea](#), [Malaysia](#), [New Zealand](#), [Pakistan](#), [Peru](#), [Philippines](#), [Russia](#), [Singapore](#), [South Africa](#), [Sri Lanka](#), [Taiwan](#), [Turkey](#), the [United Kingdom](#) and the [United States](#).



Washington Accord

- Full Signatories

- (2018)

Washington Accord – Full Signatories (2018)

| No | Member State | Member Institution | Year of admission |
|----|---------------------------|--|-------------------|
| 1 | Australia | Engineers Australia | 1989 |
| 2 | Canada | Engineers Canada | 1989 |
| 3 | China | China Association for Science and Technology | 2016 |
| 4 | Hong Kong | The Hong Kong Institution of Engineers | 1995 |
| 5 | India | National Board of Accreditation | 2014 |

Washington Accord – Full Signatories (2018)

| | | | |
|-----------|------------------------------------|---|-------------|
| 6 | <u>Ireland</u> | <u>Engineers Ireland</u> | 1989 |
| 7 | <u>Japan</u> | Japan Accreditation Board for Engineering Education | 2005 |
| 8 | <u>Malaysia</u> | <u>Board of Engineers Malaysia</u> | 2009 |
| 9 | <u>New Zealand</u> | <u>Engineering New Zealand</u> | 1989 |
| 10 | <u>Pakistan</u> | <u>Pakistan Engineering Council</u> | 2017 |

Washington Accord – Full Signatories (2018)

| | | | |
|-----------|------------------------------|--|-------------|
| 11 | Peru | ICACIT | 2018 |
| 12 | Russia | Association for Engineering Education of Russia | 2012 |
| 13 | Singapore | Institution of Engineers Singapore | 2006 |
| 14 | South Africa | Engineering Council of South Africa | 1999 |
| 15 | South Korea | Accreditation Board for Engineering Education of Korea | 2007 |

Washington Accord – Full Signatories (2018)

| | | | |
|-----------|---------------------------------------|--|-------------|
| 16 | <u>Sri Lanka</u> | <u>Institution of Engineers, Sri Lanka</u> | 2014 |
| 17 | <u>Taiwan</u> | <u>Institute of Engineering Education Taiwan</u> | 2007 |
| 18 | <u>Turkey</u> | MÜDEK | 2011 |
| 19 | <u>United Kingdom</u> | <u>Engineering Council</u> | 1989 |
| 20 | <u>United States</u> | <u>ABET</u> | 1989 |

Washington Accord - Provisional Signatories (2018)

Washington Accord – Provisional Signatories (2018)

| No | State | Institution |
|----|----------------------------|--|
| 1 | Bangladesh | Board of Accreditation for Engineering and Technical Education |
| 2 | Chile | Acredita.CI |
| 3 | Costa Rica | Association of Engineers and Architects of Costa Rica |
| 4 | Mexico | Consejo de Acreditación de la Enseñanza de la Ingeniería |

Washington Accord – Provisional Signatories (2018)

| | | |
|---|------------------------------------|---|
| 5 | <u>Philippines</u> | Philippine Technological Council |
| 6 | <u>Myanmar</u> | Myanmar Engineering Council |
| 7 | <u>Thailand</u> | Thailand Accreditation Board of Engineering Education |
| 8 | <u>Indonesia</u> | Indonesian Accreditation Board of Engineering Education |



IEA - IPEA

<https://www.ieagreements.org/agreements/ipea/>

Previously known as the Engineers Mobility Forum (EMF), the **International Professional Engineers Agreement (IPEA)**, is a multi-national agreement between engineering organisations in the member jurisdictions which creates the framework for the establishment of an international standard of competence for professional engineering, and then empowers each member organization to establish a section of the **International Professional Engineers Register**.



Members of IPEA

- **Australia** - Represented by [Engineers Australia \(EA\) \(1997\)](#)
- **Canada** - Represented by [Engineers Canada \(EC\) \(1997\)](#)
- **Chinese Taipei** - Represented by [Chinese Institute of Engineers \(CIE\) \(2009\)](#)
- **Ireland** - Represented by [Engineers Ireland \(EI\) \(1997\)](#)
- **Hong Kong China** - Represented by [The Hong Kong Institution of Engineers \(HKIE\) \(1997\)](#)
- **India** - Represented by [Institution of Engineers India \(IEI\) \(2009\)](#)
- **Japan** - Represented by [Institution of Professional Engineers Japan \(IPEJ\) \(1999\)](#)
- **Korea** - Represented by [Korean Professional Engineers Association \(KPEA\) \(2000\)](#)

- **Malaysia** - Represented by [Institution of Engineers Malaysia \(IEM\) \(1999\)](#)
- **New Zealand** - Represented by [Engineering New Zealand \(EngNZ\) \(1997\)](#)
- **Singapore** - Represented by [Institution of Engineers Singapore \(IES\) \(2007\)](#)
- **South Africa** - Represented by [Engineering Council South Africa \(ECSA\) \(2007\)](#)
- **Sri Lanka** - Represented by [Institution of Engineers Sri Lanka \(IESL\) \(2007\)](#)
- **United Kingdom** - Represented by [Engineering Council United Kingdom \(ECUK\) \(1997\)](#)
- **United States** - Represented by [National Council of Examiners for Engineering and Surveying \(NCEES\) \(1997\)](#)
- **Pakistan** - Represented by [Pakistan Engineering Council \(PEC\) \(2018\)](#)

Provisional Members Of IPEA

- **Bangladesh** - Represented by [Bangladesh Professional Engineers Registration Board \(BPERB\)](#)
- **Russia** - Represented by [Association for Engineering Education of Russia \(AEER\)](#)
- **The Netherlands** - Represented by [Royal Netherlands Society of Engineers \(KIVI\)](#)

8. My Reflection

Lesson (1): From **E**ngineering To **T**echnology

Chance in Focus:
From Engineering
(Applied Science)
To Technology
(Applied Engineering),,
From BE to B Tech

Lesson (2)

- Varieties/Choices in Higher Education

From:
Universities
(Central/State/Deemed)
To
Institutes of Technology
(IITs/NITs)


Lesson (3): Autonomous HE Institutes IITs & NITs



BTech Graduates:
are Globally Recognized
And satisfied the
changing needs of industry.

Lesson (4): AMIE Exam

Provide an
Alternative Route
To Engineering Education/
Chartered Engineer



AMIE Exam (Since 1928)
provides
An Alternative Route
For Working Adults

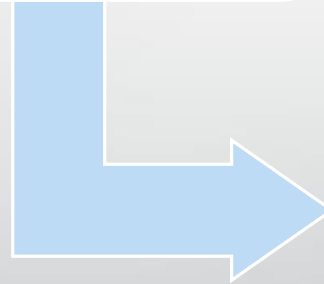
1

- AMIE Exam (Section A + Section B) or BE/BTech



2

- CEng(India), MIE



3

- IntPE(India)

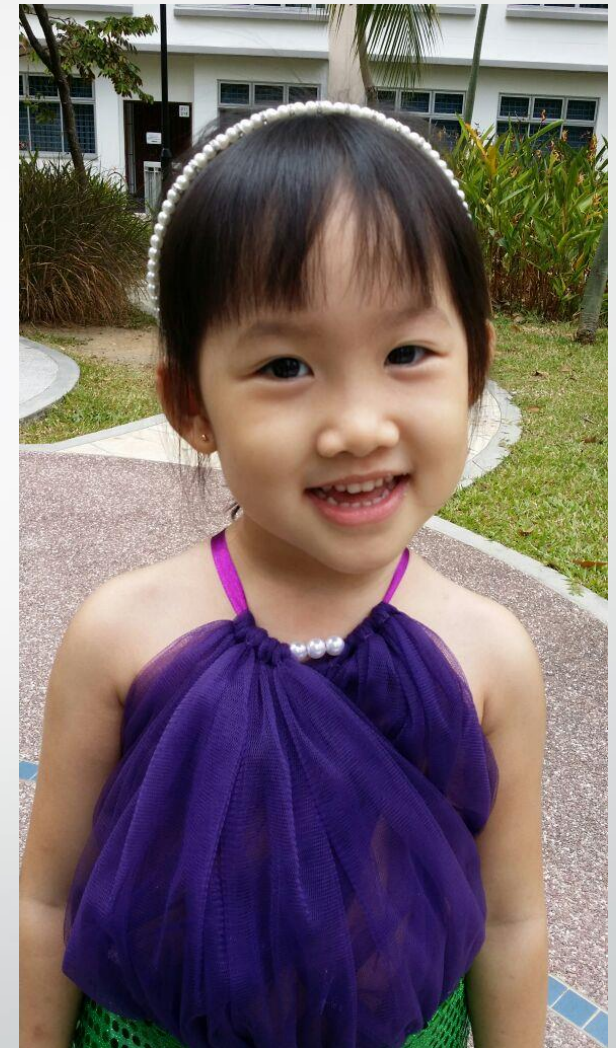


Thank you
for your
attention

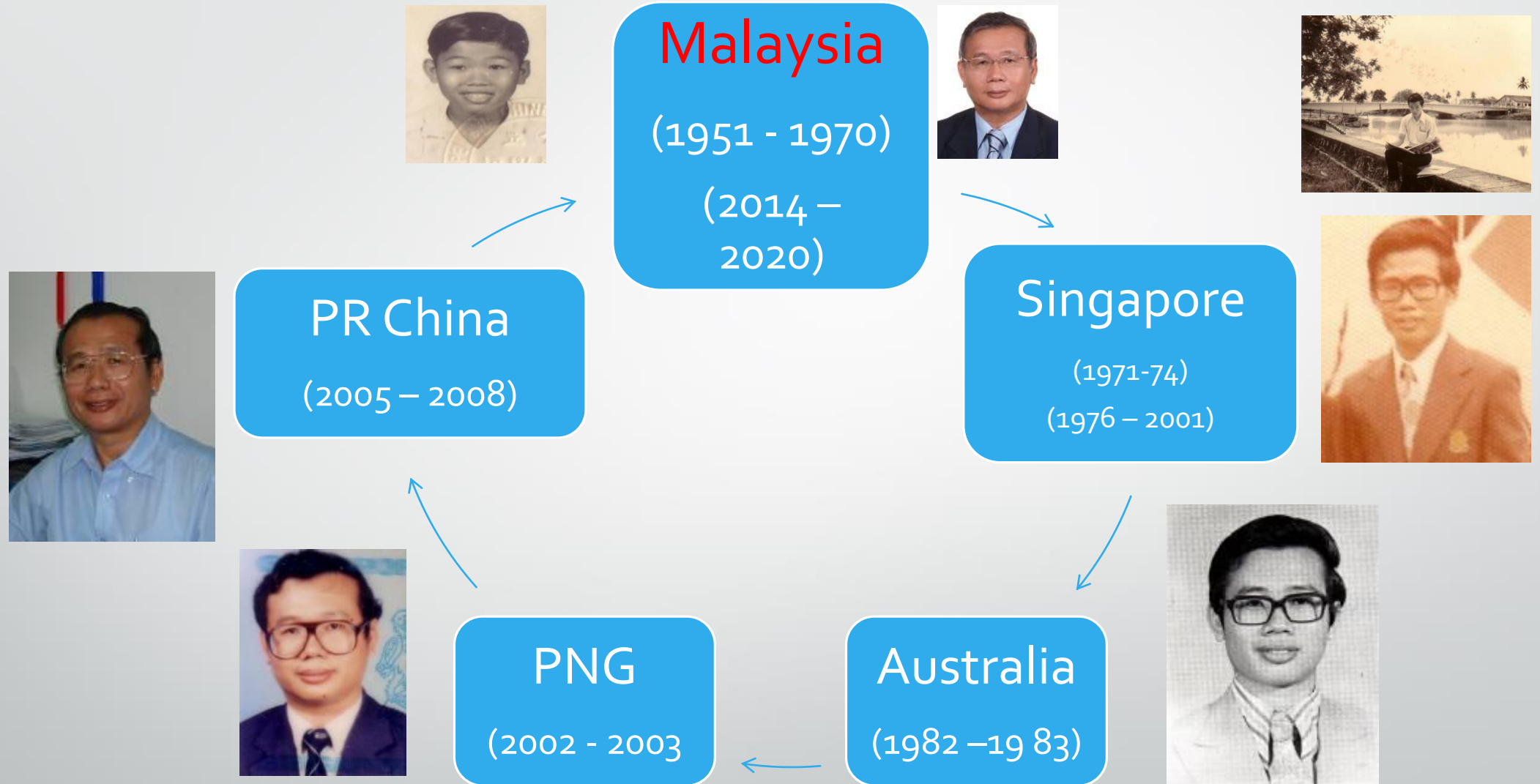
Any
Question...



Email:

sammk1951@gmail.com



My Life Journey : From **M**alaysia....Back to **M**alaysia



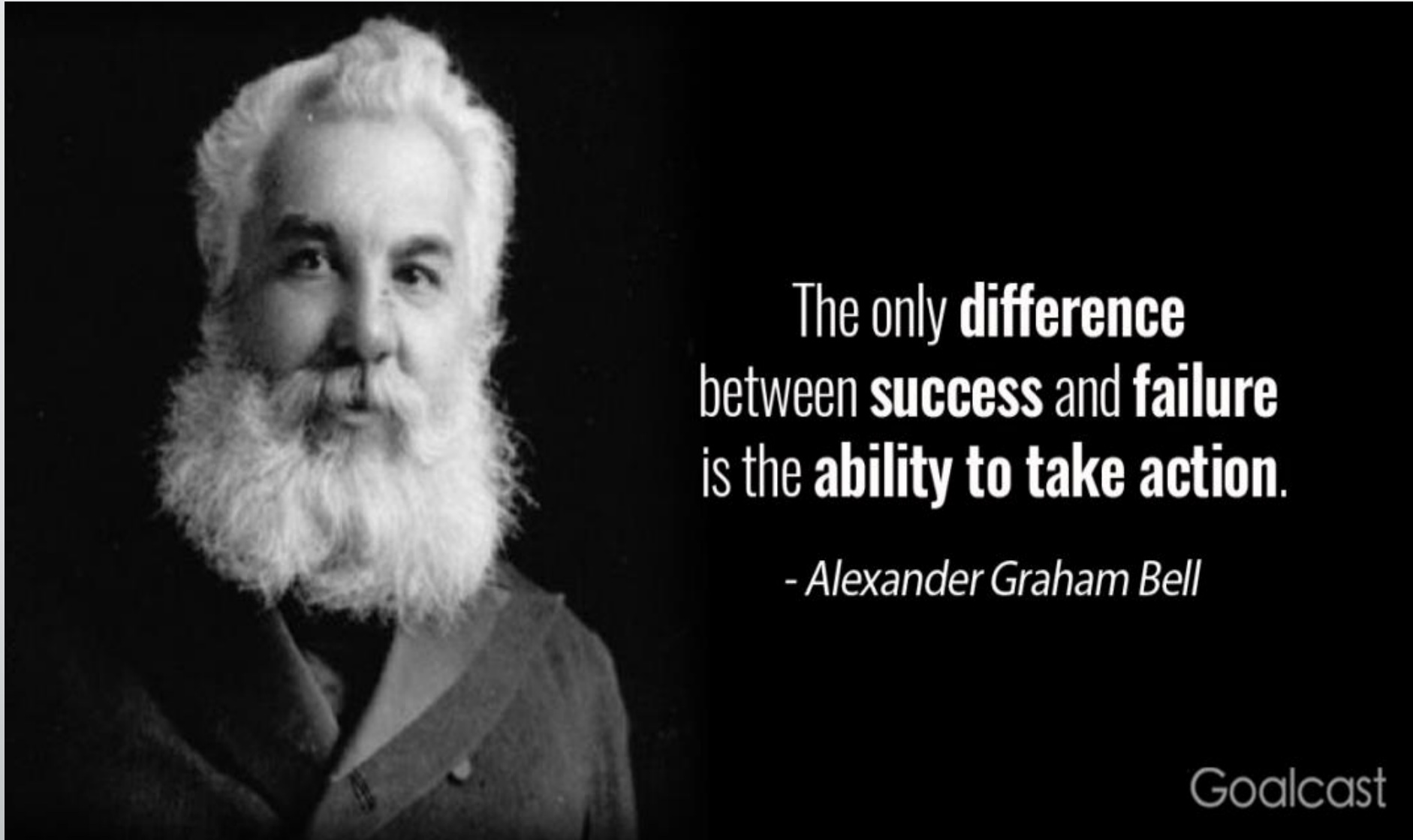


"Ideas
without action
are worthless."

Harvey Mackay

www.wow4u.com





"Everybody is a genius.

**But if you judge a fish by its
ability to climb a tree,
it will live its whole
life believing that
it is stupid."**

~ Albert Einstein

