

= Massachusetts Institute of Technology =

The Massachusetts Institute of Technology ( MIT ) is a private research university in Cambridge , Massachusetts . Founded in 1861 in response to the increasing industrialization of the United States , MIT adopted a European polytechnic university model and stressed laboratory instruction in applied science and engineering . Researchers worked on computers , radar , and inertial guidance during World War II and the Cold War . Post war defense research contributed to the rapid expansion of the faculty and campus under James Killian . The current 168 acre ( 68 ha ) campus opened in 1916 and extends over 1 mile ( 1.6 km ) along the northern bank of the Charles River basin .

MIT , with five schools and one college which contain a total of 34 departments , is often cited as among the world 's top universities . The Institute is traditionally known for its research and education in the physical sciences and engineering , and more recently in biology , economics , linguistics , and management as well . The " Engineers " sponsor 31 sports , most teams of which compete in the NCAA Division III 's New England Women 's and Men 's Athletic Conference ; the Division I rowing programs compete as part of the EARC and EAWRC .

As of 2015 , 85 Nobel laureates , 52 National Medal of Science recipients , 65 Marshall Scholars , 45 Rhodes Scholars , 38 MacArthur Fellows , 34 astronauts , 19 Turing award winners , and 6 Fields Medalists have been affiliated with MIT . The school has a strong entrepreneurial culture , and the aggregated revenues of companies founded by MIT alumni would rank as the eleventh largest economy in the world .

= = History = =

= = Foundation and vision = = =

In 1859 , a proposal was submitted to the Massachusetts General Court to use newly filled lands in Back Bay , Boston for a " Conservatory of Art and Science " , but the proposal failed . A charter for the incorporation of the Massachusetts Institute of Technology , proposed by William Barton Rogers , was signed by the governor of Massachusetts on April 10 , 1861 .

Rogers , a professor from the University of Virginia , wanted to establish an institution to address rapid scientific and technological advances . He did not wish to found a professional school , but a combination with elements of both professional and liberal education , proposing that :

The true and only practicable object of a polytechnic school is , as I conceive , the teaching , not of the minute details and manipulations of the arts , which can be done only in the workshop , but the inculcation of those scientific principles which form the basis and explanation of them , and along with this , a full and methodical review of all their leading processes and operations in connection with physical laws .

The Rogers Plan reflected the German research university model , emphasizing an independent faculty engaged in research , as well as instruction oriented around seminars and laboratories .

= = Early developments = = =

Two days after the charter was issued , the first battle of the Civil War broke out . After a long delay through the war years , MIT 's first classes were held in the Mercantile Building in Boston in 1865 . The new institute was founded as part of the Morrill Land Grant Colleges Act to fund institutions " to promote the liberal and practical education of the industrial classes " , and was a land grant school . In 1863 under the same act , the Commonwealth of Massachusetts founded the Massachusetts Agricultural College , which developed as the University of Massachusetts Amherst . In 1866 , the proceeds from land sales went toward new buildings in the Back Bay .

MIT was informally called " Boston Tech " . The institute adopted the European polytechnic

university model and emphasized laboratory instruction from an early date . Despite chronic financial problems , the institute saw growth in the last two decades of the 19th century under President Francis Amasa Walker . Programs in electrical , chemical , marine , and sanitary engineering were introduced , new buildings were built , and the size of the student body increased to more than one thousand .

The curriculum drifted to a vocational emphasis , with less focus on theoretical science . The fledgling school still suffered from chronic financial shortages which diverted the attention of the MIT leadership . During these " Boston Tech " years , MIT faculty and alumni rebuffed Harvard University president ( and former MIT faculty ) Charles W. Eliot 's repeated attempts to merge MIT with Harvard College 's Lawrence Scientific School . There would be at least six attempts to absorb MIT into Harvard . In its cramped Back Bay location , MIT could not afford to expand its overcrowded facilities , driving a desperate search for a new campus and funding . Eventually the MIT Corporation approved a formal agreement to merge with Harvard , over the vehement objections of MIT faculty , students , and alumni . However , a 1917 decision by the Massachusetts Supreme Judicial Court effectively put an end to the merger scheme .

In 1916 , the MIT administration and the MIT charter crossed the Charles River on the ceremonial barge Bucentaur built for the occasion , to signify MIT 's move to a spacious new campus largely consisting of filled land on a mile @-@ long tract along the Cambridge side of the Charles River . The neoclassical " New Technology " campus was designed by William W. Bosworth and had been funded largely by anonymous donations from a mysterious " Mr. Smith " , starting in 1912 . In January 1920 , the donor was revealed to be the industrialist George Eastman of Rochester , New York , who had invented methods of film production and processing , and founded Eastman Kodak . Between 1912 and 1920 , Eastman donated \$ 20 million ( \$ 236 @.@ 2 million in 2015 dollars ) in cash and Kodak stock to MIT .

= = = Curricular reforms = = =

In the 1930s , President Karl Taylor Compton and Vice @-@ President ( effectively Provost ) Vannevar Bush emphasized the importance of pure sciences like physics and chemistry and reduced the vocational practice required in shops and drafting studios . The Compton reforms " renewed confidence in the ability of the Institute to develop leadership in science as well as in engineering . " Unlike Ivy League schools , MIT catered more to middle @-@ class families , and depended more on tuition than on endowments or grants for its funding . The school was elected to the Association of American Universities in 1934 .

Still , as late as 1949 , the Lewis Committee lamented in its report on the state of education at MIT that " the Institute is widely conceived as basically a vocational school " , a " partly unjustified " perception the committee sought to change . The report comprehensively reviewed the undergraduate curriculum , recommended offering a broader education , and warned against letting engineering and government @-@ sponsored research detract from the sciences and humanities . The School of Humanities , Arts , and Social Sciences and the MIT Sloan School of Management were formed in 1950 to compete with the powerful Schools of Science and Engineering . Previously marginalized faculties in the areas of economics , management , political science , and linguistics emerged into cohesive and assertive departments by attracting respected professors and launching competitive graduate programs . The School of Humanities , Arts , and Social Sciences continued to develop under the successive terms of the more humanistically oriented presidents Howard W. Johnson and Jerome Wiesner between 1966 and 1980 .

= = = Defense research = = =

MIT 's involvement in military research surged during World War II . In 1941 , Vannevar Bush was appointed head of the federal Office of Scientific Research and Development and directed funding to only a select group of universities , including MIT . Engineers and scientists from across the country gathered at MIT 's Radiation Laboratory , established in 1940 to assist the British military in

developing microwave radar . The work done there significantly affected both the war and subsequent research in the area . Other defense projects included gyroscope @-@ based and other complex control systems for gunsight , bombsight , and inertial navigation under Charles Stark Draper 's Instrumentation Laboratory ; the development of a digital computer for flight simulations under Project Whirlwind ; and high @-@ speed and high @-@ altitude photography under Harold Edgerton . By the end of the war , MIT became the nation 's largest wartime R & D contractor ( attracting some criticism of Bush ) , employing nearly 4000 in the Radiation Laboratory alone and receiving in excess of \$ 100 million ( \$ 1 @.@ 2 billion in 2015 dollars ) before 1946 . Work on defense projects continued even after then . Post @-@ war government @-@ sponsored research at MIT included SAGE and guidance systems for ballistic missiles and Project Apollo .

These activities affected MIT profoundly . A 1949 report noted the lack of " any great slackening in the pace of life at the Institute " to match the return to peacetime , remembering the " academic tranquility of the prewar years " , though acknowledging the significant contributions of military research to the increased emphasis on graduate education and rapid growth of personnel and facilities . The faculty doubled and the graduate student body quintupled during the terms of Karl Taylor Compton , president of MIT between 1930 and 1948 ; James Rhyne Killian , president from 1948 to 1957 ; and Julius Adams Stratton , chancellor from 1952 to 1957 , whose institution @-@ building strategies shaped the expanding university . By the 1950s , MIT no longer simply benefited the industries with which it had worked for three decades , and it had developed closer working relationships with new patrons , philanthropic foundations and the federal government .

In late 1960s and early 1970s , student and faculty activists protested against the Vietnam War and MIT 's defense research . The Union of Concerned Scientists was founded on March 4 , 1969 during a meeting of faculty members and students seeking to shift the emphasis on military research toward environmental and social problems . MIT ultimately divested itself from the Instrumentation Laboratory and moved all classified research off @-@ campus to the Lincoln Laboratory facility in 1973 in response to the protests . The student body , faculty , and administration remained comparatively unpolarized during what was a tumultuous time for many other universities . Johnson was seen to be highly successful in leading his institution to " greater strength and unity " after these times of turmoil .

= = = Recent history = = =

MIT has kept pace with and helped to advance the digital age . In addition to developing the predecessors to modern computing and networking technologies , students , staff , and faculty members at Project MAC , the Artificial Intelligence Laboratory , and the Tech Model Railroad Club wrote some of the earliest interactive computer video games like Spacewar ! and created much of modern hacker slang and culture . Several major computer @-@ related organizations have originated at MIT since the 1980s : Richard Stallman 's GNU Project and the subsequent Free Software Foundation were founded in the mid @-@ 1980s at the AI Lab ; the MIT Media Lab was founded in 1985 by Nicholas Negroponte and Jerome Wiesner to promote research into novel uses of computer technology ; the World Wide Web Consortium standards organization was founded at the Laboratory for Computer Science in 1994 by Tim Berners @-@ Lee ; the OpenCourseWare project has made course materials for over 2 @,@ 000 MIT classes available online free of charge since 2002 ; and the One Laptop per Child initiative to expand computer education and connectivity to children worldwide was launched in 2005 .

MIT was named a sea @-@ grant college in 1976 to support its programs in oceanography and marine sciences and was named a space @-@ grant college in 1989 to support its aeronautics and astronautics programs . Despite diminishing government financial support over the past quarter century , MIT launched several successful development campaigns to significantly expand the campus : new dormitories and athletics buildings on west campus ; the Tang Center for Management Education ; several buildings in the northeast corner of campus supporting research into biology , brain and cognitive sciences , genomics , biotechnology , and cancer research ; and a number of new " backlot " buildings on Vassar Street including the Stata Center . Construction on

campus in the 2000s included expansions of the Media Lab , the Sloan School 's eastern campus , and graduate residences in the northwest . In 2006 , President Hockfield launched the MIT Energy Research Council to investigate the interdisciplinary challenges posed by increasing global energy consumption .

In 2001 , inspired by the open source and open access movements , MIT launched OpenCourseWare to make the lecture notes , problem sets , syllabuses , exams , and lectures from the great majority of its courses available online for no charge , though without any formal accreditation for coursework completed . While the cost of supporting and hosting the project is high , OCW expanded in 2005 to include other universities as a part of the OpenCourseWare Consortium , which currently includes more than 250 academic institutions with content available in at least six languages . In 2011 , MIT announced it would offer formal certification ( but not credits or degrees ) to online participants completing coursework in its " MITx " program , for a modest fee . The " edX " online platform supporting MITx was initially developed in partnership with Harvard and its analogous " Harvardx " initiative . The courseware platform is open source , and other universities have already joined and added their own course content .

Three days after the Boston Marathon bombing of April 2013 , MIT Police patrol officer Sean Collier was fatally shot by the suspects Dzhokhar and Tamerlan Tsarnaev , setting off a violent manhunt that shut down the campus and much of the Boston metropolitan area for a day . One week later , Collier 's memorial service was attended by more than 10 @, @ 000 people , in a ceremony hosted by the MIT community with thousands of police officers from the New England region and Canada . On November 25 , 2013 , MIT announced the creation of the Collier Medal , to be awarded annually to " an individual or group that embodies the character and qualities that Officer Collier exhibited as a member of the MIT community and in all aspects of his life " . The announcement further stated that " Future recipients of the award will include those whose contributions exceed the boundaries of their profession , those who have contributed to building bridges across the community , and those who consistently and selflessly perform acts of kindness " .

= = Campus = =

MIT 's 168 @-@ acre ( 68 @. @ 0 ha ) campus in the city of Cambridge spans approximately a mile along the north side of the Charles River basin . The campus is divided roughly in half by Massachusetts Avenue , with most dormitories and student life facilities to the west and most academic buildings to the east . The bridge closest to MIT is the Harvard Bridge , which is known for being marked off in a non @-@ standard unit of length ? the smoot .

The Kendall MBTA Red Line station is located on the northeastern edge of the campus , in Kendall Square . The Cambridge neighborhoods surrounding MIT are a mixture of high tech companies occupying both modern office and rehabilitated industrial buildings , as well as socio @-@ economically diverse residential neighborhoods . In early 2016 , MIT presented its updated Kendall Square Initiative to the City of Cambridge , with plans for mixed @-@ use educational , retail , residential , startup incubator , and office space in a dense high @-@ rise transit @-@ oriented development plan . The MIT Museum will eventually be moved immediately adjacent to a Kendall Square subway entrance , joining the List Visual Arts Center on the eastern end of the campus .

Each building at MIT has a number ( possibly preceded by a W , N , E , or NW ) designation and most have a name as well . Typically , academic and office buildings are referred to primarily by number while residence halls are referred to by name . The organization of building numbers roughly corresponds to the order in which the buildings were built and their location relative ( north , west , and east ) to the original center cluster of Maclaurin buildings . Many of the buildings are connected above ground as well as through an extensive network of underground tunnels , providing protection from the Cambridge weather as well as a venue for roof and tunnel hacking .

MIT 's on @-@ campus nuclear reactor is one of the most powerful university @-@ based nuclear reactors in the United States . The prominence of the reactor 's containment building in a densely populated area has been controversial , but MIT maintains that it is well @-@ secured . In 1999 Bill Gates donated US \$ 20 million to MIT for the construction of a computer laboratory named the "

William H. Gates Building " , and designed by architect Frank O. Gehry . While Microsoft had previously given financial support to the institution , this was the first personal donation received from Gates .

Other notable campus facilities include a pressurized wind tunnel and a towing tank for testing ship and ocean structure designs . MIT 's campus @-@ wide wireless network was completed in the fall of 2005 and consists of nearly 3 @, @ 000 access points covering 9 @, @ 400 @, @ 000 square feet ( 870 @, @ 000 m<sup>2</sup> ) of campus .

In 2001 , the Environmental Protection Agency sued MIT for violating the Clean Water Act and the Clean Air Act with regard to its hazardous waste storage and disposal procedures . MIT settled the suit by paying a \$ 155 @, @ 000 fine and launching three environmental projects . In connection with capital campaigns to expand the campus , the Institute has also extensively renovated existing buildings to improve their energy efficiency . MIT has also taken steps to reduce its environmental impact by running alternative fuel campus shuttles , subsidizing public transportation passes , and building a low @-@ emission cogeneration plant that serves most of the campus electricity , heating , and cooling requirements .

The MIT Police with state and local authorities , in the 2009 @-@ 2011 period , have investigated reports of 12 forcible sex offenses , 6 robberies , 3 aggravated assaults , 164 burglaries , 1 case of arson , and 4 cases of motor vehicle theft on campus ; affecting a community of around 22 @, @ 000 students and employees .

= = = Architecture = = =

MIT 's School of Architecture , now the School of Architecture and Planning , was the first in the United States , and it has a history of commissioning progressive buildings . The first buildings constructed on the Cambridge campus , completed in 1916 , are sometimes called the " Maclaurin buildings " after Institute president Richard Maclaurin who oversaw their construction . Designed by William Welles Bosworth , these imposing buildings were built of reinforced concrete , a first for a non @-@ industrial ? much less university ? building in the US . Bosworth 's design was influenced by the City Beautiful Movement of the early 1900s , and features the Pantheon @-@ esque Great Dome housing the Barker Engineering Library . The Great Dome overlooks Killian Court , where graduation ceremonies are held each year . The friezes of the limestone @-@ clad buildings around Killian Court are engraved with the names of important scientists and philosophers . The spacious Building 7 atrium at 77 Massachusetts Avenue is regarded as the entrance to the Infinite Corridor and the rest of the campus .

Alvar Aalto 's Baker House ( 1947 ) , Eero Saarinen 's MIT Chapel and Kresge Auditorium ( 1955 ) , and I.M. Pei 's Green , Dreyfus , Landau , and Wiesner buildings represent high forms of post @-@ war modernist architecture . More recent buildings like Frank Gehry 's Stata Center ( 2004 ) , Steven Holl 's Simmons Hall ( 2002 ) , Charles Correa 's Building 46 ( 2005 ) , and Fumihiko Maki 's Media Lab Extension ( 2009 ) stand out among the Boston area 's classical architecture and serve as examples of contemporary campus " starchitecture " . These buildings have not always been well received ; in 2010 , The Princeton Review included MIT in a list of twenty schools whose campuses are " tiny , unsightly , or both " .

= = = Housing = = =

Undergraduates are guaranteed four @-@ year housing in one of MIT 's 12 undergraduate dormitories . Those living on campus can receive support and mentoring from live @-@ in graduate student tutors , resident advisors , and faculty housemasters . Because housing assignments are made based on the preferences of the students themselves , diverse social atmospheres can be sustained in different living groups ; for example , according to the Yale Daily News staff 's The Insider 's Guide to the Colleges , 2010 , " The split between East Campus and West Campus is a significant characteristic of MIT . East Campus has gained a reputation as a thriving counterculture . " MIT also has 5 dormitories for single graduate students and 2 apartment buildings on campus for

married student families .

MIT has an active Greek and co @-@ op housing system , including thirty @-@ six fraternities , sororities , and independent living groups ( FSILGs ) . As of 2015 , 98 % of all undergraduates lived in MIT @-@ affiliated housing ; 54 % of the men participated in fraternities and 20 % of the women were involved in sororities . Most FSILGs are located across the river in Back Bay near where MIT was founded , and there is also a cluster of fraternities on MIT 's West Campus that face the Charles River Basin . After the 1997 alcohol @-@ related death of Scott Krueger , a new pledge at the Phi Gamma Delta fraternity , MIT required all freshmen to live in the dormitory system starting in 2002 . Because FSILGs had previously housed as many as 300 freshmen off @-@ campus , the new policy could not be implemented until Simmons Hall opened in that year .

= = Organization and administration = =

MIT is chartered as a non @-@ profit organization and is owned and governed by a privately appointed board of trustees known as the MIT Corporation . The current board consists of 43 members elected to five @-@ year terms , 25 life members who vote until their 75th birthday , 3 elected officers ( President , Treasurer , and Secretary ) , and 4 ex officio members ( the president of the alumni association , the Governor of Massachusetts , the Massachusetts Secretary of Education , and the Chief Justice of the Massachusetts Supreme Judicial Court ) . The board is chaired by Robert Millard , a co @-@ founder of L @-@ 3 Communications Holdings . The Corporation approves the budget , new programs , degrees and faculty appointments , and elects the President to serve as the chief executive officer of the university and preside over the Institute 's faculty . MIT 's endowment and other financial assets are managed through a subsidiary called MIT Investment Management Company ( MITIMCo ) . Valued at \$ 9 @.@ 7 billion in 2011 , MIT 's endowment is the sixth @-@ largest among American colleges and universities .

MIT has five schools ( Science , Engineering , Architecture and Planning , Management , and Humanities , Arts , and Social Sciences ) and one college ( Whitaker College of Health Sciences and Technology ) , but no schools of law or medicine . While faculty committees assert substantial control over many areas of MIT 's curriculum , research , student life , and administrative affairs , the chair of each of MIT 's 32 academic departments reports to the dean of that department 's school , who in turn reports to the Provost under the President . The current president is L. Rafael Reif , who formerly served as provost under President Susan Hockfield , the first woman to hold the post .

= = Academics = =

MIT is a large , highly residential , research university with a majority of enrollments in graduate and professional programs . The university has been accredited by the New England Association of Schools and Colleges since 1929 . MIT operates on a 4 ? 1 ? 4 academic calendar with the fall semester beginning after Labor Day and ending in mid @-@ December , a 4 @-@ week " Independent Activities Period " in the month of January , and the spring semester beginning in early February and ending in late May .

MIT students refer to both their majors and classes using numbers or acronyms alone . Departments and their corresponding majors are numbered in the approximate order of their foundation ; for example , Civil and Environmental Engineering is Course 1 , while Linguistics and Philosophy is Course 24 . Students majoring in Electrical Engineering and Computer Science ( EECS ) , the most popular department , collectively identify themselves as " Course 6 " . MIT students use a combination of the department 's course number and the number assigned to the class to identify their subjects ; the introductory calculus @-@ based classical mechanics course is simply " 8 @.@ 01 " at MIT .

= = Undergraduate program = =

The four @-@ year , full @-@ time undergraduate program maintains a balance between

professional majors and those in the arts and sciences , and has been dubbed " most selective " by U.S. News , admitting few transfer students and 8 % of its applicants in the 2015 admissions cycle . MIT offers 44 undergraduate degrees across its five schools . In the 2010 ? 2011 academic year , 161 bachelor of science degrees ( abbreviated " SB " ) were granted , the only type of undergraduate degree MIT now awards . In the 2011 fall term , among students who had designated a major , the School of Engineering was the most popular division , enrolling 63 % of students in its 19 degree programs , followed by the School of Science ( 29 % ) , School of Humanities , Arts , & Social Sciences ( 37 % ) , Sloan School of Management ( 33 % ) , and School of Architecture and Planning ( 2 % ) . The largest undergraduate degree programs were in Electrical Engineering and Computer Science ( Course 6 ? 2 ) , Computer Science and Engineering ( Course 6 ? 3 ) , Mechanical Engineering ( Course 2 ) , Physics ( Course 8 ) , and Mathematics ( Course 18 ) .

All undergraduates are required to complete a core curriculum called the General Institute Requirements ( GIRs ) . The Science Requirement , generally completed during freshman year as prerequisites for classes in science and engineering majors , comprises two semesters of physics , two semesters of calculus , one semester of chemistry , and one semester of biology . There is a Laboratory Requirement , usually satisfied by an appropriate class in a course major . The Humanities , Arts , and Social Sciences ( HASS ) Requirement consists of eight semesters of classes in the humanities , arts , and social sciences , including at least one semester from each division as well as the courses required for a designated concentration in a HASS division . Under the Communication Requirement , two of the HASS classes , plus two of the classes taken in the designated major must be " communication @-@ intensive " , including " substantial instruction and practice in oral presentation " . Finally , all students are required to complete a swimming test ; non @-@ varsity athletes must also take four quarters of physical education classes .

Most classes rely on a combination of lectures , recitations led by associate professors or graduate students , weekly problem sets ( " p @-@ sets " ) , and periodic quizzes or tests . While the pace and difficulty of MIT coursework has been compared to " drinking from a fire hose " , the freshmen retention rate at MIT is similar other research universities . The " pass / no @-@ record " grading system relieves some pressure for first @-@ year undergraduates . For each class taken in the fall term , freshmen transcripts will either report only that the class was passed , or otherwise not have any record of it . In the spring term , passing grades ( A , B , C ) appear on the transcript while non @-@ passing grades are again not recorded . ( Grading had previously been " pass / no record " all freshman year , but was amended for the Class of 2006 to prevent students from gaming the system by completing required major classes in their freshman year . ) Also , freshmen may choose to join alternative learning communities , such as Experimental Study Group , Concourse , or Terrascope .

In 1969 , Margaret MacVicar founded the Undergraduate Research Opportunities Program ( UROP ) to enable undergraduates to collaborate directly with faculty members and researchers . Students join or initiate research projects ( " UROPs " ) for academic credit , pay , or on a volunteer basis through postings on the UROP website or by contacting faculty members directly . A substantial majority of undergraduates participate . Students often become published , file patent applications , and / or launch start @-@ up companies based upon their experience in UROPs .

In 1970 , the then @-@ Dean of Institute Relations , Benson R. Snyder , published The Hidden Curriculum , arguing that education at MIT was often slighted in favor of following a set of unwritten expectations , and that graduating with good grades was more often the product of figuring out the system rather than a solid education . The successful student , according to Snyder , was the one who was able to discern which of the formal requirements were to be ignored in favor of which unstated norms . For example , organized student groups had compiled " course bibles " ? collections of problem @-@ set and examination questions and answers for later students to use as references . This sort of gamesmanship , Snyder argued , hindered development of a creative intellect and contributed to student discontent and unrest .

== Graduate program ==

MIT 's graduate program has high coexistence with the undergraduate program , and many courses are taken by qualified students at both levels . MIT offers a comprehensive doctoral program with degrees in the humanities , social sciences , and STEM fields as well as professional degrees . The Institute offers graduate programs leading to academic degrees such as the Master of Science ( MS ) , various Engineer 's Degrees , Doctor of Philosophy ( PhD ) , and Doctor of Science ( ScD ) and interdisciplinary graduate programs such as the MD @-@ PhD ( with Harvard Medical School ) .

Admission to graduate programs is decentralized ; applicants apply directly to the department or degree program . More than 90 % of doctoral students are supported by fellowships , research assistantships ( RAs ) , or teaching assistantships ( TAs ) .

MIT awarded 1 @, @ 547 master 's degrees and 609 doctoral degrees in the academic year 2010 ? 11 . In the 2011 fall term , the School of Engineering was the most popular academic division , enrolling 45 @. @ 0 % of graduate students , followed by the Sloan School of Management ( 19 % ) , School of Science ( 16 @. @ 9 % ) , School of Architecture and Planning ( 9 @. @ 2 % ) , Whitaker College of Health Sciences ( 5 @. @ 1 % ) , and School of Humanities , Arts , and Social Sciences ( 4 @. @ 7 % ) . The largest graduate degree programs were the Sloan MBA , Electrical Engineering and Computer Science , and Mechanical Engineering .

= = = University rankings = = =

MIT places among the top ten in many overall rankings of universities ( see right ) and rankings based on students ' revealed preferences . For several years , U.S. News & World Report , the QS World University Rankings , and the Academic Ranking of World Universities have ranked MIT 's School of Engineering first , as did the 1995 National Research Council report . In the same lists , MIT 's strongest showings apart from in engineering are in computer science , the natural sciences , business , economics , linguistics , mathematics , and , to a lesser extent , political science and philosophy .

In 2014 , Money magazine ranked MIT as third in the US " Best Colleges for Your Money " , based on its assessment of " the most bang for your tuition buck " , factoring in quality of education , affordability , and career outcomes . As of 2014 , Forbes magazine rated MIT as the second " Most Entrepreneurial University " , based on the percentage of alumni and students self @-@ identifying as founders or business owners on LinkedIn . In 2015 , Brookings Fellow Jonathan Rothwell issued a report " Beyond College Rankings " , placing MIT as third in the US , with an estimated 45 % value @-@ added to mid @-@ career salary .

= = = Collaborations = = =

The university historically pioneered research and training collaborations between academia , industry and government . In 1946 , President Compton , Harvard Business School professor Georges Doriot , and Massachusetts Investor Trust chairman Merrill Grisswold founded American Research and Development Corporation , the first American venture @-@ capital firm . In 1948 , Compton established the MIT Industrial Liaison Program . Throughout the late 1980s and early 1990s , American politicians and business leaders accused MIT and other universities of contributing to a declining economy by transferring taxpayer @-@ funded research and technology to international ? especially Japanese ? firms that were competing with struggling American businesses . On the other hand , MIT 's extensive collaboration with the federal government on research projects has led to several MIT leaders serving as presidential scientific advisers since 1940 . MIT established a Washington Office in 1991 to continue effective lobbying for research funding and national science policy .

The U.S. Justice Department began an investigation in 1989 , and in 1991 filed an antitrust suit against MIT , the eight Ivy League colleges , and eleven other institutions for allegedly engaging in price @-@ fixing during their annual " Overlap Meetings " , which were held to prevent bidding wars over promising prospective students from consuming funds for need @-@ based scholarships . While the Ivy League institutions settled , MIT contested the charges , arguing that the practice was



not anti @-@ competitive because it ensured the availability of aid for the greatest number of students . MIT ultimately prevailed when the Justice Department dropped the case in 1994 .

MIT 's proximity to Harvard University ( " the other school up the river " ) has led to a substantial number of research collaborations such as the Harvard @-@ MIT Division of Health Sciences and Technology and the Broad Institute . In addition , students at the two schools can cross @-@ register for credits toward their own school 's degrees without any additional fees . A cross @-@ registration program between MIT and Wellesley College has also existed since 1969 , and in 2002 the Cambridge ? MIT Institute launched an undergraduate exchange program between MIT and the University of Cambridge . MIT has more modest cross @-@ registration programs with Boston University , Brandeis University , Tufts University , Massachusetts College of Art , and the School of the Museum of Fine Arts , Boston .

MIT maintains substantial research and faculty ties with independent research organizations in the Boston area , such as the Charles Stark Draper Laboratory , the Whitehead Institute for Biomedical Research , and the Woods Hole Oceanographic Institution . Ongoing international research and educational collaborations include the Singapore @-@ MIT Alliance , MIT @-@ Politecnico di Milano , MIT @-@ Zaragoza International Logistics Program , and projects in other countries through the MIT International Science and Technology Initiatives ( MISTI ) program .

The mass @-@ market magazine Technology Review is published by MIT through a subsidiary company , as is a special edition that also serves as an alumni magazine . The MIT Press is a major university press , publishing over 200 books and 30 journals annually , emphasizing science and technology as well as arts , architecture , new media , current events , and social issues .

= = = Libraries , collections and museums = = =

The MIT library system consists of five subject libraries : Barker ( Engineering ) , Dewey ( Economics ) , Hayden ( Humanities and Science ) , Lewis ( Music ) , and Rotch ( Arts and Architecture ) . There are also various specialized libraries and archives . The libraries contain more than 2 @. @ 9 million printed volumes , 2 @. @ 4 million microforms , 49 @, @ 000 print or electronic journal subscriptions , and 670 reference databases . The past decade has seen a trend of increased focus on digital over print resources in the libraries . Notable collections include the Lewis Music Library with an emphasis on 20th and 21st @-@ century music and electronic music , the List Visual Arts Center 's rotating exhibitions of contemporary art , and the Compton Gallery 's cross @-@ disciplinary exhibitions . MIT allocates a percentage of the budget for all new construction and renovation to commission and support its extensive public art and outdoor sculpture collection .

The MIT Museum was founded in 1971 and collects , preserves , and exhibits artifacts significant to the culture and history of MIT . The Museum now engages in significant educational outreach programs for the general public , including the annual Cambridge Science Festival , the first celebration of this kind in the United States . Since 2005 , its official mission has been , " to engage the wider community with MIT 's science , technology and other areas of scholarship in ways that will best serve the nation and the world in the 21st century " .

= = = Research = = =

MIT was elected to the Association of American Universities in 1934 and remains a research university with a very high level of research activity ; research expenditures totaled \$ 718 @. @ 2 million in 2009 . The federal government was the largest source of sponsored research , with the Department of Health and Human Services granting \$ 255 @. @ 9 million , Department of Defense \$ 97 @. @ 5 million , Department of Energy \$ 65 @. @ 8 million , National Science Foundation \$ 61 @. @ 4 million , and NASA \$ 27 @. @ 4 million . MIT employs approximately 1300 researchers in addition to faculty . In 2011 , MIT faculty and researchers disclosed 632 inventions , were issued 153 patents , earned \$ 85 @. @ 4 million in cash income , and received \$ 69 @. @ 6 million in royalties . Through programs like the Deshpande Center , MIT faculty leverage their research and discoveries into multi @-@ million @-@ dollar commercial ventures .

In electronics , magnetic core memory , radar , single electron transistors , and inertial guidance controls were invented or substantially developed by MIT researchers . Harold Eugene Edgerton was a pioneer in high speed photography and sonar . Claude E. Shannon developed much of modern information theory and discovered the application of Boolean logic to digital circuit design theory . In the domain of computer science , MIT faculty and researchers made fundamental contributions to cybernetics , artificial intelligence , computer languages , machine learning , robotics , and cryptography . At least nine Turing Award laureates and seven recipients of the Draper Prize in engineering have been or are currently associated with MIT .

Current and previous physics faculty have won eight Nobel Prizes , four Dirac Medals , and three Wolf Prizes predominantly for their contributions to subatomic and quantum theory . Members of the chemistry department have been awarded three Nobel Prizes and one Wolf Prize for the discovery of novel syntheses and methods . MIT biologists have been awarded six Nobel Prizes for their contributions to genetics , immunology , oncology , and molecular biology . Professor Eric Lander was one of the principal leaders of the Human Genome Project . Positronium atoms , synthetic penicillin , synthetic self @-@ replicating molecules , and the genetic bases for Amyotrophic lateral sclerosis ( also known as ALS or Lou Gehrig 's disease ) and Huntington 's disease were first discovered at MIT . Jerome Lettvin transformed the study of cognitive science with his paper " What the frog 's eye tells the frog 's brain " .

In the domain of humanities , arts , and social sciences , MIT economists have been awarded five Nobel Prizes and nine John Bates Clark Medals . Linguists Noam Chomsky and Morris Halle authored seminal texts on generative grammar and phonology . The MIT Media Lab , founded in 1985 within the School of Architecture and Planning and known for its unconventional research , has been home to influential researchers such as constructivist educator and Logo creator Seymour Papert .

Spanning many of the above fields , MacArthur Fellowships ( the so @-@ called " Genius Grants " ) have been awarded to 38 people associated with MIT . Four Pulitzer Prize ? winning writers currently work at or have retired from MIT . Four current or former faculty are members of the American Academy of Arts and Letters .

Allegations of research misconduct or improprieties have received substantial press coverage . Professor David Baltimore , a Nobel Laureate , became embroiled in a misconduct investigation starting in 1986 that led to Congressional hearings in 1991 . Professor Ted Postol has accused the MIT administration since 2000 of attempting to whitewash potential research misconduct at the Lincoln Lab facility involving a ballistic missile defense test , though a final investigation into the matter has not been completed . Associate Professor Luk Van Parijs was dismissed in 2005 following allegations of scientific misconduct and found guilty of the same by the United States Office of Research Integrity in 2009 . Researchers developed a system to convert MRI scans into 3D printed physical models .

= = Traditions and student activities = =

The faculty and student body place a high value on meritocracy and on technical proficiency . MIT has never awarded an honorary degree , nor does it award athletic scholarships , ad eundem degrees , or Latin honors upon graduation . However , MIT has twice awarded honorary professorships : to Winston Churchill in 1949 and Salman Rushdie in 1993 .

Many upperclass students and alumni wear a large , heavy , distinctive class ring known as the " Brass Rat " . Originally created in 1929 , the ring 's official name is the " Standard Technology Ring . " The undergraduate ring design ( a separate graduate student version exists as well ) varies slightly from year to year to reflect the unique character of the MIT experience for that class , but always features a three @-@ piece design , with the MIT seal and the class year each appearing on a separate face , flanking a large rectangular bezel bearing an image of a beaver . The initialism IHTFP , representing the informal school motto " I Hate This Fucking Place " and jocularly euphemized as " I Have Truly Found Paradise , " " Institute Has The Finest Professors , " " It 's Hard to Fondle Penguins , " and other variations , has occasionally been featured on the ring given its

historical prominence in student culture .

#### == Activities ==

MIT has over 500 recognized student activity groups , including a campus radio station , The Tech student newspaper , an annual entrepreneurship competition , and weekly screenings of popular films by the Lecture Series Committee . Less traditional activities include the " world 's largest open @-@ shelf collection of science fiction " in English , a model railroad club , and a vibrant folk dance scene . Students , faculty , and staff are involved in over 50 educational outreach and public service programs through the MIT Museum , Edgerton Center , and MIT Public Service Center .

The Independent Activities Period is a four @-@ week @-@ long " term " offering hundreds of optional classes , lectures , demonstrations , and other activities throughout the month of January between the Fall and Spring semesters . Some of the most popular recurring IAP activities are the 6 @. @ 270 , 6 @. @ 370 , and MasLab competitions , the annual " mystery hunt " , and Charm School . More than 250 students pursue externships annually at companies in the US and abroad .

Many MIT students also engage in " hacking " , which encompasses both the physical exploration of areas that are generally off @-@ limits ( such as rooftops and steam tunnels ) , as well as elaborate practical jokes . Recent high @-@ profile hacks have included the abduction of Caltech 's cannon , reconstructing a Wright Flyer atop the Great Dome , and adorning the John Harvard statue with the Master Chief 's Mjölir Helmet .

#### == Athletics ==

MIT sponsors 31 varsity sports and has one of the three broadest NCAA Division III athletic programs . MIT participates in the NCAA 's Division III , the New England Women 's and Men 's Athletic Conference , the New England Football Conference , the Pilgrim League for men 's lacrosse , NCAA 's Division I Eastern Association of Women 's Rowing Colleges ( EAWRC ) for women 's crew , and the Collegiate Water Polo Association ( CWPA ) for Men 's Water Polo . Men 's crew competes outside the NCAA in the Eastern Association of Rowing Colleges ( EARC ) . In April 2009 , budget cuts lead to MIT eliminating eight of its 41 sports , including the mixed men 's and women 's teams in alpine skiing and pistol ; separate teams for men and women in ice hockey and gymnastics ; and men 's programs in golf and wrestling .

#### == People ==

#### == Students ==

MIT enrolled 4 @, @ 384 undergraduates and 6 @, @ 510 graduate students in 2011 ? 2012 . Women constituted 45 percent of undergraduate students . Undergraduate and graduate students were drawn from all 50 states as well as 115 foreign countries .

MIT received 17 @, @ 909 applications for admission to the undergraduate Class of 2015 ; 1 @, @ 742 were admitted ( 9 @. @ 7 percent ) and 1128 enrolled ( 64 @. @ 8 percent ) . 19 @, @ 446 applications were received for graduate and advanced degree program across all departments ; 2 @, @ 991 were admitted ( 15 @. @ 4 percent ) and 1 @, @ 880 enrolled ( 62 @. @ 8 percent ) .

The interquartile range on the SAT was 2090 ? 2340 and 97 percent of students ranked in the top tenth of their high school graduating class . 97 percent of the Class of 2012 returned as sophomores ; 82 percent of the Class of 2007 graduated within 4 years , and 93 percent ( 91 percent of the men and 95 percent of the women ) graduated within 6 years .

Undergraduate tuition and fees total \$ 40 @, @ 732 and annual expenses are estimated at \$ 52 @, @ 507 as of 2012 . 62 percent of students received need @-@ based financial aid in the form of scholarships and grants from federal , state , institutional , and external sources averaging \$ 38 @, @ 964 per student . Students were awarded a total of \$ 102 million in scholarships and grants ,

primarily from institutional support ( \$ 84 million ) . The annual increase in expenses has led to a student tradition ( dating back to the 1960s ) of tongue @-@ in @-@ cheek " tuition riots " .

MIT has been nominally co @-@ educational since admitting Ellen Swallow Richards in 1870 . Richards also became the first female member of MIT 's faculty , specializing in sanitary chemistry . Female students remained a minority prior to the completion of the first wing of a women 's dormitory , McCormick Hall , in 1963 . Between 1993 and 2009 , the proportion of women rose from 34 percent to 45 percent of undergraduates and from 20 percent to 31 percent of graduate students . Women currently outnumber men in Biology , Brain & Cognitive Sciences , Architecture , Urban Planning , and Biological Engineering .

A number of student deaths in the late 1990s and early 2000s resulted in considerable media attention to MIT 's culture and student life . After the alcohol @-@ related death of Scott Krueger in September 1997 as a new member at the Phi Gamma Delta fraternity , MIT began requiring all freshmen to live in the dormitory system . The 2000 suicide of MIT undergraduate Elizabeth Shin drew attention to suicides at MIT and created a controversy over whether MIT had an unusually high suicide rate . In late 2001 a task force 's recommended improvements in student mental health services were implemented , including expanding staff and operating hours at the mental health center . These and later cases were significant as well because they sought to prove the negligence and liability of university administrators in loco parentis .

= = = Faculty and staff = = =

As of 2013 , MIT had 1 @,@ 030 faculty members , of whom 225 were women . Faculty are responsible for lecturing classes , advising both graduate and undergraduate students , and sitting on academic committees , as well as conducting original research . Between 1964 and 2009 , a total of seventeen faculty and staff members affiliated with MIT were awarded Nobel Prizes ( thirteen in the last 25 years ) . MIT faculty members past or present have won a total of twenty @-@ seven Nobel Prizes , the majority in Economics or Physics . As of October 2013 , among current faculty and teaching staff there are 67 Guggenheim Fellows , 6 Fulbright Scholars , and 22 MacArthur Fellows . Faculty members who have made extraordinary contributions to their research field as well as the MIT community are granted appointments as Institute Professors for the remainder of their tenures .

A 1998 MIT study concluded that a systemic bias against female faculty existed in its School of Science , although the study 's methods were controversial . Since the study , though , women have headed departments within the Schools of Science and of Engineering , and MIT has appointed several female vice presidents , although allegations of sexism continue to be made . Susan Hockfield , a molecular neurobiologist , was MIT 's president from 2004 to 2012 and was the first woman to hold the post .

Tenure outcomes have vaulted MIT into the national spotlight on several occasions . The 1984 dismissal of David F. Noble , a historian of technology , became a cause célèbre about the extent to which academics are granted freedom of speech after he published several books and papers critical of MIT 's and other research universities ' reliance upon financial support from corporations and the military . Former materials science professor Gretchen Kalonji sued MIT in 1994 alleging that she was denied tenure because of sexual discrimination . Several years later , the lawsuit was settled with undisclosed payments , and establishment of a project to encourage women and minorities to seek faculty positions . In 1997 , the Massachusetts Commission Against Discrimination issued a probable cause finding supporting UMass Boston Professor James Jennings ' allegations of racial discrimination after a senior faculty search committee in the Department of Urban Studies and Planning did not offer him reciprocal tenure . In 2006 ? 2007 , MIT 's denial of tenure to African @-@ American stem cell scientist professor James Sherley reignited accusations of racism in the tenure process , eventually leading to a protracted public dispute with the administration , a brief hunger strike , and the resignation of Professor Frank L. Douglas in protest . April Simpson of The Boston Globe reported on February 6 , 2007 : " Less than half of MIT 's junior faculty members are granted tenure . After Sherley was initially denied tenure , his case was

examined three times before the university established that neither racial discrimination nor conflict of interest affected the decision . Twenty @-@ one of Sherley 's colleagues issued a statement yesterday saying that the professor was treated fairly in tenure review . "

MIT faculty members have often been recruited to lead other colleges and universities . Founding faculty member Charles W. Eliot was recruited in 1869 to become president of Harvard University , a post he would hold for 40 years , during which he wielded considerable influence on both American higher education and secondary education . MIT alumnus and faculty member George Ellery Hale played a central role in the development of the California Institute of Technology ( Caltech ) , and other faculty members have been key founders of Franklin W. Olin College of Engineering in nearby Needham , Massachusetts .

As of 2014 , former provost Robert A. Brown is president of Boston University ; former provost Mark Wrighton is chancellor of Washington University in St. Louis ; former associate provost Alice Gast is president of Lehigh University ; and former professor Suh Nam @-@ pyo is president of KAIST . Former dean of the School of Science Robert J. Birgeneau was the chancellor of the University of California , Berkeley ( 2004 ? 2013 ) ; former professor John Maeda was president of Rhode Island School of Design ( RISD , 2008 ? 2013 ) ; former professor David Baltimore was president of Caltech ( 1997 ? 2006 ) ; and MIT alumnus and former assistant professor Hans Mark served as chancellor of the University of Texas system ( 1984 ? 1992 ) .

In addition , faculty members have been recruited to lead governmental agencies ; for example , former professor Marcia McNutt is president of the National Academy of Sciences , urban studies professor Xavier de Souza Briggs is currently the associate director of the White House Office of Management and Budget , and biology professor Eric Lander is a co @-@ chair of the President 's Council of Advisors on Science and Technology . In 2013 , faculty member Ernest Moniz was nominated by President Obama and later confirmed as United States Secretary of Energy . Former professor Hans Mark served as Secretary of the Air Force from 1979 to 1981 . Alumna and Institute Professor Sheila Widnall served as Secretary of the Air Force between 1993 and 1997 , making her the first female Secretary of the Air Force and first woman to lead an entire branch of the US military in the Department of Defense .

Based on feedback from employees , MIT was ranked # 7 as a place to work , among US colleges and universities as of 2013 . Surveys cited a " smart " , " creative " , " friendly " environment , noting that the work @-@ life balance tilts towards a " strong work ethic " , but complaining about " low pay " .

== = Notable alumni == =

Many of MIT 's over 120 @, @ 000 alumni have had considerable success in scientific research , public service , education , and business . As of 2014 , 27 MIT alumni have won the Nobel Prize , 47 have been selected as Rhodes Scholars , and 61 have been selected as Marshall Scholars .

Alumni in American politics and public service include former Chairman of the Federal Reserve Ben Bernanke , former MA @-@ 1 Representative John Olver , former CA @-@ 13 Representative Pete Stark , former National Economic Council chairman Lawrence H. Summers , and former Council of Economic Advisors chairwoman Christina Romer . MIT alumni in international politics include Foreign Affairs Minister of Iran Ali Akbar Salehi , Israeli Prime Minister Benjamin Netanyahu , President of Colombia Virgilio Barco Vargas , President of the European Central Bank Mario Draghi , Governor of the Reserve Bank of India Raghuram Rajan , former British Foreign Minister David Miliband , former Greek Prime Minister Lucas Papademos , former UN Secretary General Kofi Annan , and former Iraqi Deputy Prime Minister Ahmed Chalabi .

MIT alumni founded or co @-@ founded many notable companies , such as Intel , McDonnell Douglas , Texas Instruments , 3Com , Qualcomm , Bose , Raytheon , Koch Industries , Rockwell International , Genentech , Dropbox , and Campbell Soup . According to the British newspaper , The Guardian , " a survey of living MIT alumni found that they have formed 25 @, @ 800 companies , employing more than three million people including about a quarter of the workforce of Silicon Valley . Those firms collectively generate global revenues of about \$ 1 @. @ 9 trillion ( £ 1 @. @ 2 trillion ) a

year . If MIT were a country , it would have the 11th highest GDP of any nation in the world . "

Prominent institutions of higher education have been led by MIT alumni , including the University of California system , Harvard University , New York Institute of Technology , Johns Hopkins University , Carnegie Mellon University , Tufts University , Rochester Institute of Technology , Rhode Island School of Design ( RISD ) , Northeastern University , Lahore University of Management Sciences , Rensselaer Polytechnic Institute , Tecnológico de Monterrey , Purdue University , Virginia Polytechnic Institute , KAIST , and Quaid @-@ e @-@ Azam University . Berklee College of Music , the largest independent college of contemporary music in the world , was founded and led by MIT alumnus Lawrence Berk for more than three decades .

More than one third of the United States ' manned spaceflights have included MIT @-@ educated astronauts ( among them Apollo 11 Lunar Module Pilot Buzz Aldrin ) , more than any university excluding the United States service academies . Alumnus and former faculty member Qian Xuesen was instrumental in the PRC rocket program .

Noted alumni in non @-@ scientific fields include author Hugh Lofting , sculptor Daniel Chester French , guitarist Tom Scholz of the band Boston , the British BBC and ITN correspondent and political advisor David Walter , The New York Times columnist and Nobel Prize Winning economist Paul Krugman , The Bell Curve author Charles Murray , United States Supreme Court building architect Cass Gilbert , Pritzker Prize @-@ winning architects I.M. Pei and Gordon Bunshaft .