Department of Computer Engineering
(Estd. 1995)

Computer science empowers students to create the world of tomorrow.

- Satya Nadella, CEO of Microsoft

Vision and Mission of the Department are aligned with University's Vision and Mission

	Vision	Mission
University	The University is committed to becoming a leading 'Center of Excellence' in the field of Engineering, Technology and Science as a seat of learning with a national character and international outlook.	The University is committed to provide quality technical education, research and development services to meet the needs of industry, business, service sector and the society, at large.
Computer Department	The department is committed to achieving academic excellence through education and research in the emerging and established areas of computer science and engineering.	Building the capacities of young students to realize their professional and academic dreams.

Curricular Aspects
(Criterion - I)

Programs Offered

Sr. No.	Name of the Program	Intake	Year of Inception
1	B.Tech (Computer Engineering)	60	1995
2	M.Tech (Computer Engineering)	18	2001
3	Ph.D. (Engg. & Technology)	Pursuing Ph.D. (20)	2007, 2012

- 24 B.Tech batches are passed out (more than 1600 students pass out)
- 18 M.Tech batches are passed out (more than 250 students pass out)
- PhD awarded (6) and pursuing PhD at present (20)

Student Enrollment

- 100% Admission for UG program
- One of the few institutes form the state starting PG program in CSE (1999).
- PhD program is highly competitive one 1:10 ratio of applicants

Sanctioned Intake	B.Tech.	M.Tech.	PhD
	60	18	
2021-2022	61	3	9
2020-2021	59	0	0
2019-2020	60	3	0
2018-2019	62	3	4
2017-2018	67	7	4

30% of UG students are from Konkan.

30

75% of PG students are female.

75

80% of PhD students are part-time working as faculty members.
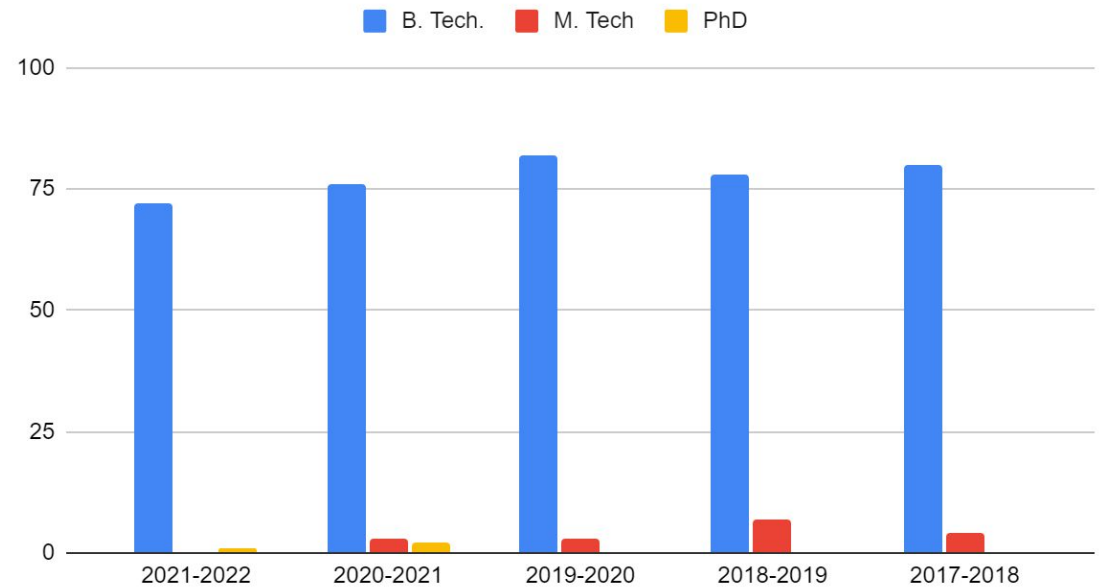
80

Passed out Students

- 100% passed out students in final year of UG
- Less than 1% PhD to UG student ratio
- Average time taken to complete PhD program is 5 years.

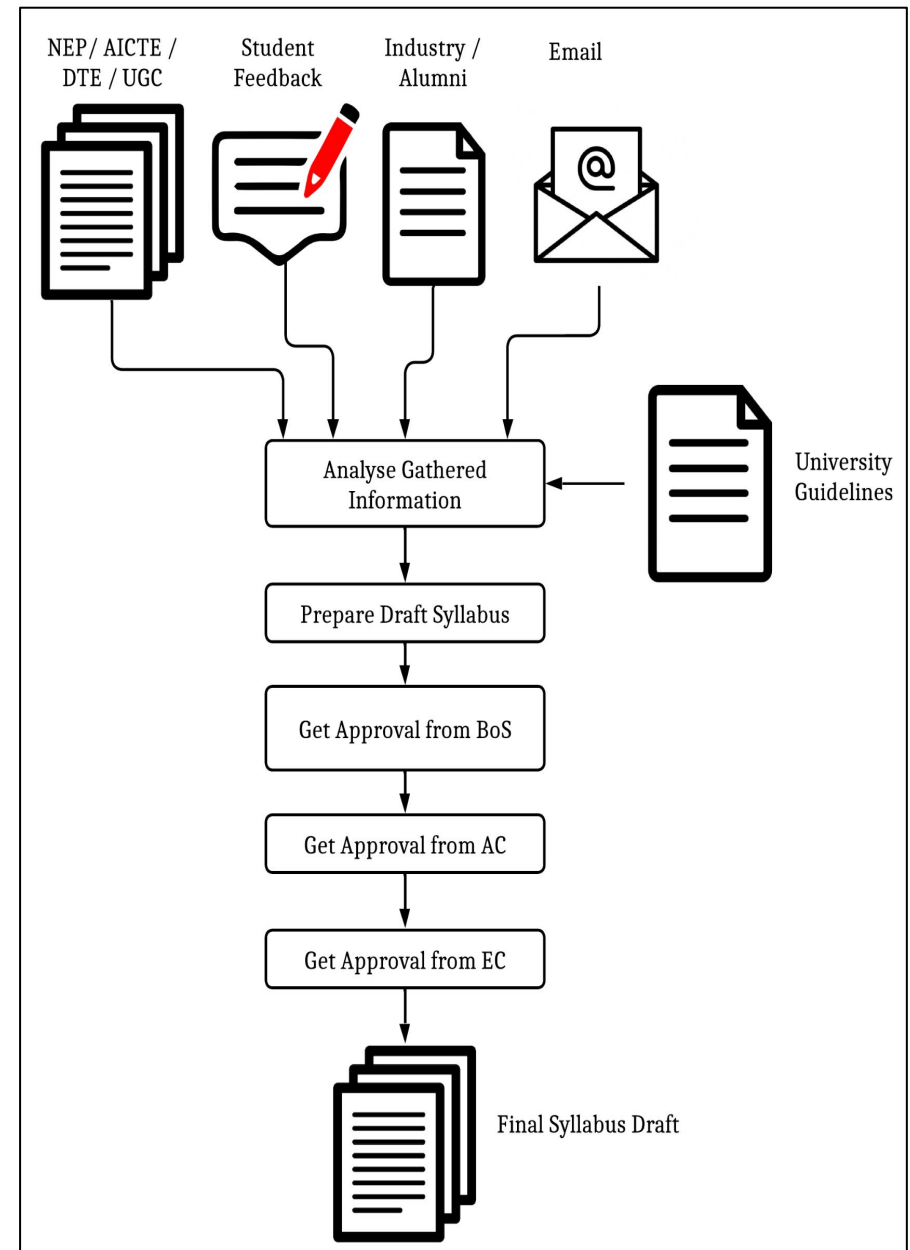| Year	B.Tech.	M.Tech.	PhD
2021 - 2022	72	0	1
2020 - 2021	76	3	2
2019 - 2020	82	3	0
2018 - 2019	78	7	0
2017 - 2018	80	4	0

B. Tech., M. Tech and PhD

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Curricular Design and Planning

- BoS designs the syllabus for all program

- The department implements Choice-based-Credit-System (CBCS) from the year 2006-07.

- The course curriculum consists of 40% elective courses and 60% compulsory courses

- The ratio of practical to theoretical courses is 30:70.

- For each course NPTEL mapping is provided.

NEP / AICTE / DTE / UGC
Student Feedback
Industry / Alumni
Email

Analyse Gathered Information
University Guidelines

Prepare Draft Syllabus

Get Approval from BoS

Get Approval from AC

Get Approval from EC

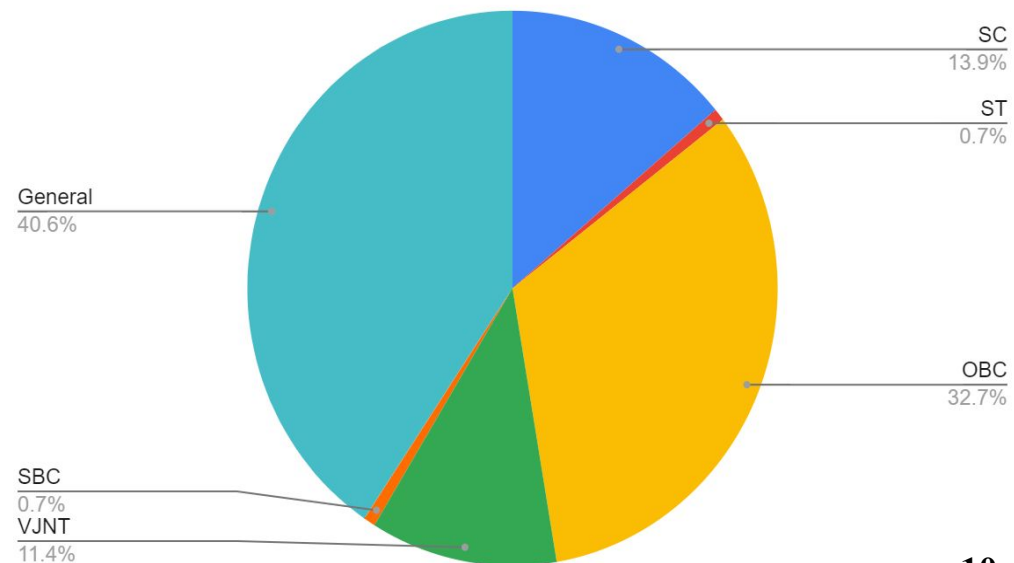Final Syllabus Draft

Continued…

- Department adopts a mix of pedagogical methods such as experiential learning through project-based learning, internship and classroom teaching methodologies
  .

- Two addon courses are offered at UG-level
  - Basic Human Rights
  - Data Structure for Competitive Programming.

- Department regularly collects and analyzes the feedback regarding course content and program structure from Alumni and Employers

- An academic calender of curricular and extracurricular activities is prepared at the beginning of academic year.

Teaching, Learning, Evaluations (Criterion - II)

Student Enrollment Profile

Academic Year	B. Tech. in Computer Engineering					
	SC	ST	OBC	VJNT	SBC	GEN
2021-2022	39	2	92	32	2	114
2020-2021	41	5	102	29	4	102
2019-2020	43	7	108	25	5	102
2018-2019	43	6	108	25	5	99
2017-2018	39	12	109	31		101

2017-18, 2018-19, 2019-20, 2020-21 and 2021-2022

SC 13.9%
ST 0.7%
OBC 32.7%
VJNT 11.4%
SBC 0.7%
General 40.6%

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10

Faculty Positions

Sr. No.	Name of the Post	Sanctioned	Filled	Vacant
	Undergraduate			
1	Assistant Professor	7	3	4
2	Associate Professor	3	2	1
3	Professor	2	2 (CAS)	2
	Post Graduate			
1	Assistant Professor	1	0	1
2	Associate Professor	1	0	1
3	Professor	1	0	1
	Total	**15**	**5**	**10**

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Faculty Profile

Sr. No.	Name and Designation	Regular / Adhoc	Total Experience	Highest Qualification	H-index	Citations
Professor (CAS) and Associate Professor (Regular)						
1	Arvind W Kiwelekar	Regular	32	PhD	10	312
2	Laxman D. Netak	Regular	28	PhD	8	157
Assistant Professor (Regular)						
3	Manjushree D. Laddha	Regular	19	PhD	4	42
4	Harishchandra A. Akarte	Regular	20	PhD (Pursuing at MNIT)	2	5
5	Sanjay U. Waikar	Regular	28	M. Tech	2	12
6	Iram R. A Jhetam	Regular	19	M Tech	1	2

Continued...

Sr. No.	Name and Designation	Regular/ Adhoc	Total Experience	Highest Qualification	H-index	Citations
Assistant Professor (Adhoc)						
7	Sanil Gandhi	Adhoc	7	M.Tech.	2	8
8	Rahul Rathod	Adhoc	10	M.Tech.	2	10
9	Tejas Bhaise	Adhoc	2	M.Tech.	-	-
10	Pramod Patil	Adhoc	4	M.Tech.	3	19
11	Swanand Navandar	Adhoc	7	M.Tech.	1	6
12	Harsha Gaikwad	Adhoc	7	M.Tech.	1	2
13	Shweta Tembe	Adhoc	3	M.Tech.	-	-
Average Experience Years 13 Years						

Faculty Student Ratio

Academic Year	Student Faculty Ratio	No. Faculty with PhD Out of Sanctioned 12
2018 - 2019	26.63	2
2019 - 2020	26.54	2
2020 - 2021	26.27	3
2021 - 2022	26.36	3
2022 - 2023	24.25	3

Teaching-Learning Process

- Department Adopts Outcome Based Education (OBE) approach to Teaching and learning processes.

- The Program Specific Objective, Course Objectives are defined for all courses and programs.

- The course outcomes are regularly assessed through annual academic audit.

- Faculty adopts a mix of teaching methodologies including conventional classroom teaching, online teaching and blended learning.

- Departments conduct programming contest and encourages students to participate in programming hackathons

Evaluation Process and Reforms

- The department adopts formative and summative methods of evaluation to assess student performances (40:60)

- Continuous evaluation is done for laboratory courses.

- Department also adopt other assessment methods
  - Quizzes
  - Seminar
  - Mini-Projects
  - Internship

- Passing percentage of final year students is 100% during last five years.

- Remedial Examinations are taken immediately for failed students after the declaration of results.

Research, Innovation, and Extension (Criterion - III)

Dr. Babasaheb Ambedkar Technological University

Resource Mobilization for Research

Sr. No.	Project Name	Amount	Funding Agency	Coordinator	Status
1	RGSTC University Scheme	3.6 Lac	University	Laxman D. Netak	Ongoing
2	WDM optical burst switched networks	1.90 Lac	UGC	Laxman D. Netak	Completed
3	Prerana	10 Lacs	AICTE	Arvind Kiwelekar	Completed
4	PMMMTTC (in collaboration with VJTI)	736 Lacs	Ministry of Education, (GoI)	Arvind Kiwelekar and V B Nikam, VJTI	Ongoing
5	ATA Freight (Research collaboration with Industry)	45 Lacs	ATA	Arvind Kiwelekar & Laxman Netak	Completed
6	TEQIP - III	32 lakhs	NPIU	Arvind Kiwelekar & Laxman Netak	Completed

- Department undertake research in cutting edge technologies to promote innovation (AI, Blockchain technology)

- The research output of the department got published in high-ranked CS conferences where acceptance ratio is less than 15% and novelty of research is main criteria. (e.g. ECSA, SAC, IJCAI, ICSE)

- The department has contributed by developing databases for Marathi and Konkan region.

Research Publication (Faculty)

Sr. No.	Name of the Faculty	No. of Books/Patent Published	No. of Journals	No. of Conferences	No. of Book Chapters	Total
1	Arvind Kiwelekar	1+1	19	18	10	46
2	Laxman D. Netak	-	12	18	6	35
3	Manjushree Laddha	-	6	4	2	11
4	Harishchandra Akarte	1 Patent	3	1	3	7
6	Iram R A Jhetam	-	1	-	-	1
7	Harsha Gaikwad	-	1	3	-	4
8	Rahul Rathod	-	-	1	-	1
9	Sanil S. Gandhi	-	2	4	2	8
10	Sanjay Waikar	-	-	2	1	3
11	Swanand Navandar	-	2	2	-	4

Automated techniques **to generate question paper** based on university guidelines have been developed.
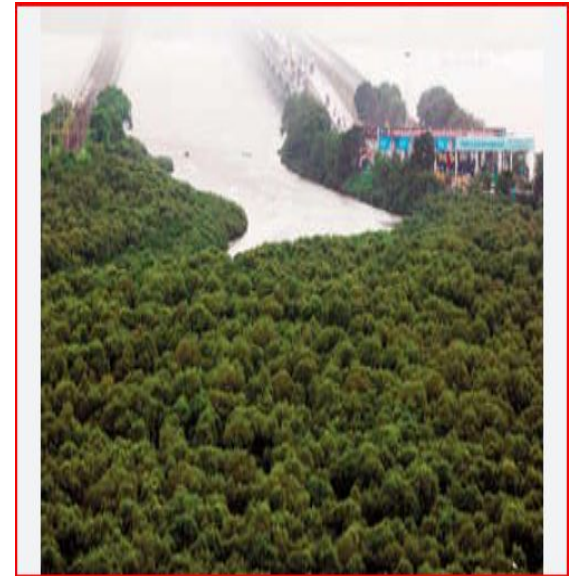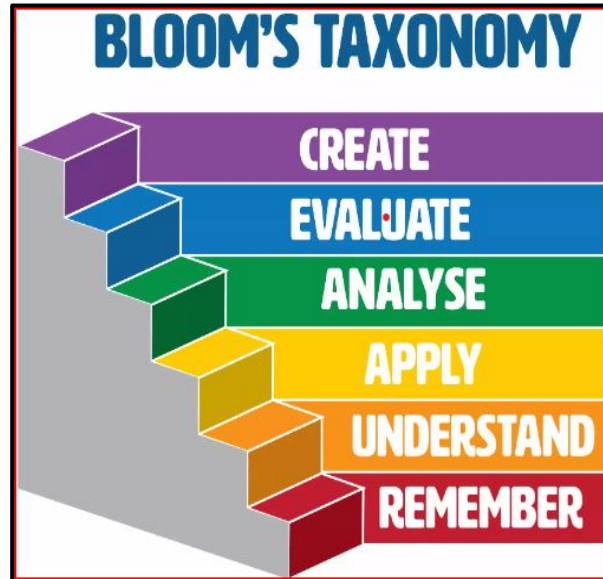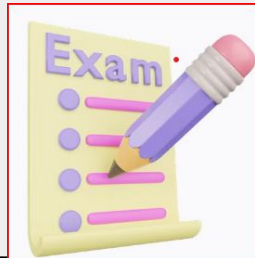
Automated techniques **to grade students' work** based on university provided rubrics have been developed.

Research Outcomes
(ATA Industry Sponsored Project)

An **AI-based tool** has been developed to assess the engagement of employees working in logistics industry.

Predictive analytics tool has been developed to predict the arrival of shipment using AIS data.

- 1 Phd student has been out in year 2022.
- 1 PhD is in process.
- Publications
  - 3 Journal papers
  - 1 Book Chapter
  - 1 Book is to be published in 2024
  - 5 Conference papers.

ATAFreight

Ph.D. Students

Completed			
Sr. No.	Name of the Research Scholar	Topic	Supervisor
1	Jadhav S. M.	Artificial Neural Network Based Medical Decision Support System for Cardiac Arrhythmia Detection and Classification Using ECG Signal Data	Dr. Ashok Ghatol & Dr. Sanjay Nalbalwar
2	Netak L. D.	Techniques for Data Burst Scheduling in Optical Burst Switched (OBS) based WDM Network	Dr. Girish Chowdhary
3	Wankhede H. S.	An Automated Classification Framework for Engineering Examination	Dr. Arvind Kiwelekar
4	Deshmukh Rushali	Machine Learning Techniques for the Semantic Analysis of Marathi Text	Dr. Arvind Kiwelekar
5	Laddha M. D.	A Software Architecture Perspective of Learning Analytics	Dr. Arvind Kiwelekar & Dr. Laxman Netak
6	Garg Rachit	Application of Machine Learning in Logistics	

Continued…

Pursuing			
Sr. No.	Name of the Research Scholar	Topic	Supervisor
1	Swanand Navandar	Cognitive Modeling for Software Language Learning	Dr. Arvind Kiwelekar
2	Sanjay B. Thakre	Social Network Analysis	Dr. Arvind Kiwelekar
3	Yogesh N. Patil	Blockchain Based Examination System	Dr. Arvind Kiwelekar
4	Prasad C. Mahajan	Application of Machine Learning in Marine Transportation	Dr. Arvind Kiwelekar Dr. Laxman Netak
5	Sanil S. Gandhi	Blockchain Engineering for E-Governance	
6	Gitanjali Mahamunkar	Geospatial Data Analysis Using Deep Learning	
7	Pramod R. Patil	Security in Fog Computing	
8	Mukkawar Vinayak	Application of Immersive Technologies for Experiential Learning	
9	Borade Jyoti G.	Automatic Grading System	
10	Lokare Varsha T.	EEG Analysis for Cognitive Learning	
11	Harsha Gaikwad	Applications of Large Language Models	Dr. Arvind Kiwelekar Dr. M. D. Laddha
12	Heena Gangrekar	AI for Software Engineering / Software Engineering for AI	Dr. M. D. Laddha Dr. A. W. Kiwelekar
13	Rahul Rathod	Development of Cognitive modeling using EEG signal Analysis	Dr. M. D. Laddha Dr. L. D. Netak

PhD Scholar Achievements

Name of the Ph.D. Student	Name of the Conference
Varsha T. Lokare	12th International Conference in Intelligent Human Computer Interaction (IHCI 2020) Ex-Daegu South Korea.
Manjushree D. Laddha	13th International Conference in Intelligent Human Computer Interaction (IHCI 2021) Kent Ohio USA.
Gitanjali S. Mahamunkar	13th International Conference in Intelligent Human Computer Interaction (IHCI 2021) Kent Ohio USA.
Sanjay B. Thakare	The 37th ACM/SIGAPP Symposium On Applied Computing (ACM SAC 2022), Brno, Czech Republic.

Research Consultancy, and Extension Activities

- Prof. A W Kiwelekar is a consultant of Climate Action Group, New Delhi for the topic **ICT for Sustainable Development and Development Goals**

- Faculty members acts as PhD thesis evaluator and reviewership for reputed international journals.
  - Elsevier
  - Springer

- Faculty members from the department are the members of RRC committees of the other universities and acts as TPC members of various international conferences.

Research Collaboration

- Mr. W. Libardo Pantoja from University of Cauca was a research intern (Virtual research Internship) from July 2021 to December 2021 in the department.

- An initial contact with Czech Technical University from Czech Republic is established for research collaboration.

- A special session on Cognitive Learning Analytics was organized in 13th International Conference on Intelligent Human Computer Interaction (IHCI) Kent Ohio USA in collaboration with the faculty members from University of Cauaca, Colombia and Saarland University Germany.
  - Prof. Julio Ariel Hurtado, University of Cauca, Colombia
  - Dr. Roopak Tamboli, Saarland University, Germany

- The department collaborates with MNNIT Allahabad and VJTI for research activities.

Teacher's Training

- Ministry of Education, Government of India, jointly approved a Faculty Development Center to **DBATU** and VJTI under **Pandit Madan Mohan Malviya National Mission on Teachers and Training (PMMMNMTT)**

- A non-recurring grant of **Rs. 436 lakhs** and recurring grant of Rs**. 110 lakhs per annum** during the FY 2017-20 was sanctioned

- **Product Design Engineering** was theme for teacher's training

- DBATU conducted **14 training programs** for faculty members from affiliated colleges.

- More than **450 faculty members trained** on subject of **Product Design Engineering**

- **Autodesk** the leading software solution was the partner to provide software solution

- University collaborated with **NASSCOM** for course material and certification.

- Department of Computer Engineering Coordinated the program

Empowering SC/ST students

- Department of Computer Programming has received a grant of **Rs 9.2 lakhs** to train SC/ST on Competitive Programming

- **100 students** from the university departments and affiliated colleges colleges are trained on competitive programming

- A special **bootcamp on Competitive programming** was organized for the students from the affiliated colleges

- Training programs on **emerging data analysis skills** was also organized

Infrastructure and Learning Resources (Criterion - IV)

Physical Facilities

- Departments has air conditioned laboratories and two seminar rooms

- A state of art digital studio is developed to record lectures and programs.

- Recently department's physical facilities have been improved by adding following features.
  - 20 KVA UPS
  - Painting and decorating walls
  - False ceiling
  - Internet bandwidth
  - EEG headset
  - Desktops machines

Physical Facilities

Online Learning Resource

Special Laboratories: Cognitive Modelling and IoT Laboratories

A cognitive modelling lab facility has been developed to undertake research in cognitive and behavioural sciences and Brain Computer Interface.

An IoT laboratory has been developed to undertake community projects and conduct student hackathons

Year-wise Budget for the Department

Head	Budget	Expenditure
2017-18		
Machinery & Equipment	1170369	10856
Laboratory Expenditure (recurring)	530000	345291
TA/DA	84,000	31088
Conferences & Seminars	72,000	46370
Office Expenses	10,000	7736
Departmental Students' Activities	25,000	0
2018-19		
Machinery & Equipment	1096000	88881
Laboratory Expenditure (recurring)	580000	81498
TA/DA	84000	12000
Conferences & Seminars	72000	0
Office Expenses	10000	7802
Departmental Students' Activities	25000	0

Head	Budget	Expenditure
2019-20		
Machinery & Equipment	600000	233881
Laboratory Expenditure (recurring)	500000	105348
TA/DA	50000	4000
Conferences & Seminars	75000	0
Office Expenses	20000	13904
Departmental Students' Activities	50000	0
2020-21		
Machinery & Equipment	600000	0
Laboratory Expenditure (recurring)	300000	148109
TA/DA	50000	0
Conferences & Seminars	75000	57588
Office Expenses	20000	14386
Departmental Students' Activities	50000	0

Budget Utilization
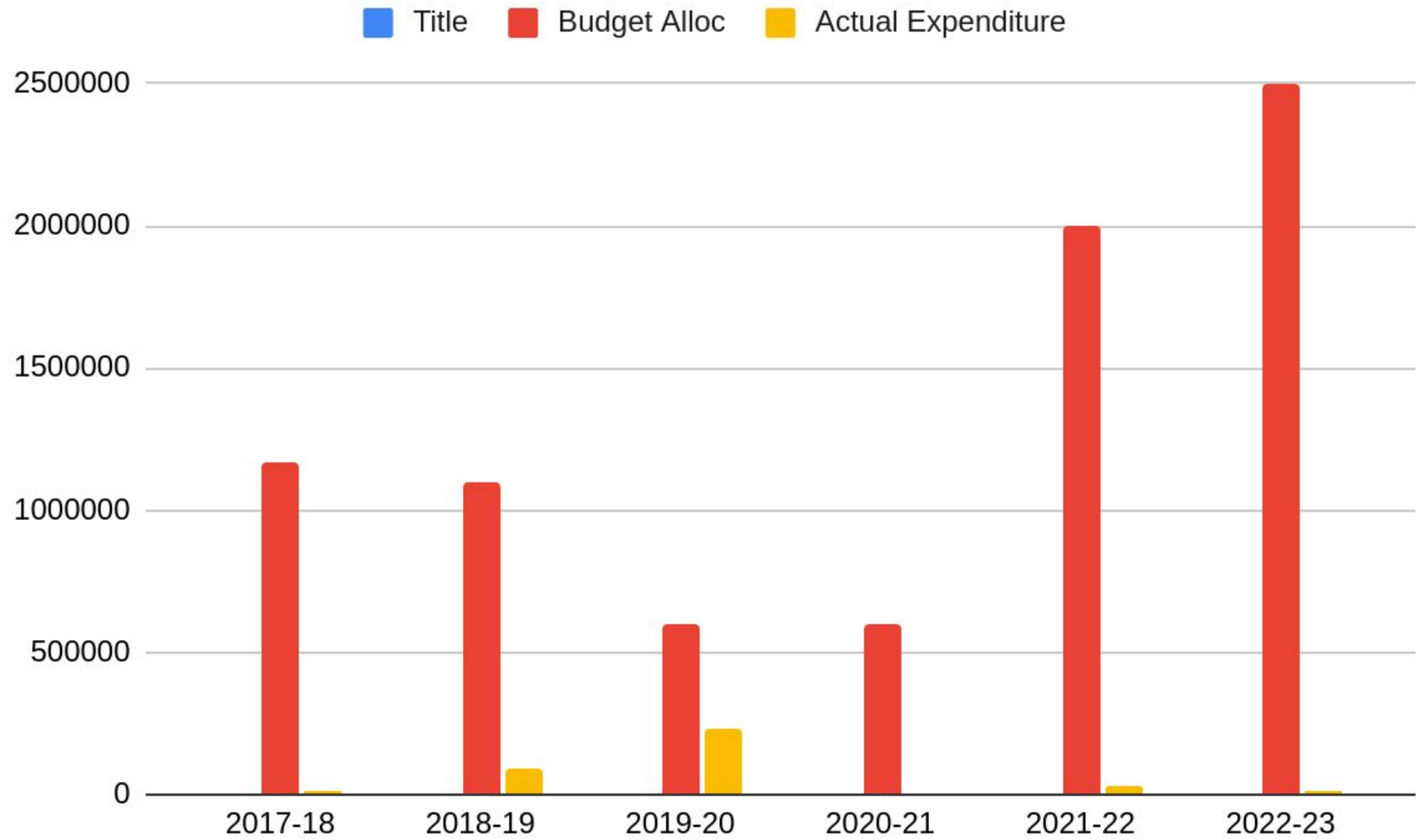
Student Support and Progression (Criterion - V)

Students' Activities

- Department regularly conducts induction program as per AICTE guideline every year at the beginning of first year.

- A local CodeChef chapter for Competitive Programming.

- Association of Computer Engineering Students (ACES) organizes annual events and technical festivals.

- Students from the department qualified for regional round of ACM-ICPC 2021 with All India Rank of 94.

Student Outcome and Progression

Academic Year	GATE	CAT	GRE	Number of Students placed	Average Package (L/A)	Recruiter
2022 - 2023	5	1	1	5*	5.0	
2021 - 2022	4	-	2	41	4.0	**Accenture, Persistent, TCS, Cognizant, Wipro, Wiley Mthree, HCL, Capgemini, Reliance Jio, Dhyey Consulting, Indiamart**
2020 - 2021	3	1	2	48	4.0	
2019 - 2020	1	-	1	34	4.0	
2018 - 2019	3	-	2	17	4.0	

Student Achievements and Awards

DBATU ALUMNI ASSOCIATION
Dr. Babasaheb Ambedkar Technological University, Lonere

Sr. No.	Name of Students	Class
1	Isha Sanjay Patil	First
2	Mokshada Eknath Jawle	Second
3	Alia Bandarkar	Third

POSCO

Sr. No.	Name of Students
1	Alia Bandarkar
2	Shruti Palkar
3	Shruti Palkar
4	Urusa Dalvi

acm International Collegiate Programming Contest

Sr. No.	Name of Students	Class
1	Omkar Raut	
2	Swaraj Shelvale	Final Year B.Tech. Computer
3	Amol Ambekar	
4	Harshal Chaudhari	

Microsoft   SAP   edunet foundation

Sr. No.	Name of Students	Class
1	Aishwarya Rudrawar	First
2	Harsha Gaikwad	Second

Distinguished Alumni 2012-2022

- **Gunratan Lonare** completed his B. Tech. in Computer Engineering from 2008 to 2012.
- As of October 2023, Gunratan holds the Assistant Professor of Finance position at **Illinois State University (USA).**
- He is also a two-time recipient of the JN Tata Endowment award for academic excellence in 2016 and 2019.

- **Gaurav Kataria** pursued his B. Tech in Computer Engineering from 2008 to 2012.
- He worked to many multinational corporations such as Persistent, Electronic Arts (EA) and Amazon and **Meta.**
- His dual stints at MANG companies inspire students within his department and those attending tier 3 institutes.

- **Akshay Ghodake** completed his B. Tech in Computer Engineering from 2008 to 2012.
- Akshay holds the position of *Head of Innovation at ATA Freight, a US-headquartered leading logistics provider company*.
- Akshay has played an instrumental role in setting up an industry-sponsored PhD program and fetched Rs 45 lakhs.

Continued...

	- **Ajinkya Shinde** pursued his B. Tech in Computer Engineering from 2009 to 2013. - He founded a venture dedicated to the branding and marketing of 'Basundi' a dairy product. - Ajinkya journey is a shining example of social entrepreneurship and an inspiring story for students.
	- **Abhijeet, Kattee** a 2012-2016 graduating batch membe - Rather than opting for a conventional career at Persistent, he boldly pursued entrepreneurial venture - Over just seven years, Abhijeet successfully founded two ventures: Parava and Lonere Labs. - His innovative product, "MedWriter" an AI Writing Assistant designed for doctors acquired by a Y Combinator and MeiTY of the Government of India.
	- **Prasad Chaugule** completed his B. Tech in Computer Engineering from 2008 to 2012. - In 2012, he qualified for the GATE and was admitted to VJTI Subsequently, in 2022, Prasad earned his PhD from the Department of Computer Engineering at IIT Bombay. - His exceptional research contributions have earned recognition in publications, including the ACM Transactions on Computation Theory.

Governance, Leadership and Management (Criterion - VI)

Institutional Vision and Leadership, Faculty Empowerment Strategies

- Members from the department work towards achieving academic goals of the university by serving as a Dean, Member of Executive Council, OSD for regional centers and various committees of the university.

- All full time adhoc faculty members are encouraged to pursue PhD.

- Department is liberal in deputing its faculty members for higher studies and FDP.

- Department coordinates the FDC activities established under PMMMNMTT.

Governance: Departmental

Advisory Board

Sr. No.	Name	Member Category
1	Prof. Rushikesh K Joshi	IIT Bombay
2	Prof. Amey Karkare	IIT Kanpur
3	Dr. Sandip Deshmukh	Industry
4	Shri Shridhar Bhat	Industry
5	Shri Ashok Chunderwar	Industry

Departmental Research Committee

Sr. No.	Name of Students	Category
1	Dr. A W Kiwelekar	Head
2	Dr. L D Netak	PhD Guide
3	Dr. M D Laddha	PhD Guide
4	Dr. V G Sargade	External Member

Board of Studies (Departmental)

Sr. No.	Name of Students
1	Head of Department, Chairman
2	Two regular faculty members
3	Two Industry Expert

Departmental Purchase Committee

Sr. No.	Name	Member Category
1	Dr. A W Kiwelekar	Chairman
2	Dr. L D Netak	Member
3	Dr. M D Laddha	Member
4	Prof H A Akarte	Member
5	Prof. IRA Jhetam	Member

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Institutional Values and Best Practices (Criterion - VII)

Values, Best Practices, and Institutional Distinctiveness

- The department is driven by the values of *openness*, *academic excellence* and *empowering students with latest knowledge and skills*.

- The integration of competitive programming platforms **(e.g. CodeChef, HackerRank, and GitHub)** with academic activities is one of the best practices followed in the department.

- Department undertakes socially relevant research projects aligned to SDG.

- The department has the unique achievement of publishing papers at *European Conference on Software Architecture* (ECSA 2010, 2010, 2015, 2020), a **Rank 1** conference where less than 15% papers get accepted. DBATU is the only university from India to achieve this feat.

Strengths, Weaknesses, Opportunities, Challenges

01 **Strengths**

- Well furnished physical infrastructure
- Academic curriculum aligned with NEP and Industry requirement
- Departmental flexibility and academic freedom
- Experienced and qualified regular faculty
- Hardworking and motivated adhoc staff
- Supportive alumni network

02 **Weaknesses**

- Culture of Entrepreneurship and innovation need to be strengthened.
- Limited Internet bandwidth
- ICT infrastructure needs to be strengthened

Continued…

03	**Opportunities**	• Research and entrepreneurial opportunities created because of advances in AI and allied branches • Increased demand for PhD program • International collaboration opportunities created because of NEP • To establish CoE in emerging areas (AI, ICT4SD)
04	**Challenges**	• To increase enrollment in MTech program • To improve commitment level of part-time RS for research work • Infrastructure development within limited budget and procedural constraints • Balancing academic and admin activities for regular staff • To improve job security and dignity for adhoc staff

Future Plans

- To align curricular activities as per NEP 2020 guidelines

- To achieve 100% placement for B.Tech. (Comp. Engg) students before 2025.

- To double the number of Ph.D. students on roll before 2025

- To establish research collaboration with foreign Universities

- To develop a culture of **research innovation** and **entrepreneurship** among students

- To adopt cloud-based platforms for student support (Salesforce), Canvas, Grammarly, Overleaf and other similar platforms.

Dr. Babasaheb Ambedkar Technological University

The development of exponential technologies like new biotech and AI hint at a larger trend - one in which humanity can shift from a world of constraints to one in which we think with a long-term purpose where sustainable food production, housing, and freshwater is available for all.

-*Arvind Gupta, Indian Toy Inventor*