ATHARVA COLLEGE OF ENGINEERING (ACE), MUMBAI

BASIC INFORMATION

Atharva College of Engineering (ACE), established in 1999, is located in Malad (West), Mumbai, Maharashtra. It is affiliated with the University of Mumbai and is approved by the All India Council for Technical Education (AICTE). The college has been re-accredited with an 'A+' Grade by NAAC and operates under DTE Code EN3203. As a private self-financing institution, ACE is situated in a well-developed educational complex with modern infrastructure. The language of instruction is English.

VISION AND MISSION

The college envisions becoming a premier institution that produces globally competent and socially responsible professionals through high-quality education and research. Its mission includes providing a strong foundation of technical knowledge to students, cultivating creativity, ethics, and leadership qualities, establishing industry and research partnerships, and creating a learner-centric environment that fosters innovation and personal growth.

ACADEMIC PROGRAMS

ACE offers a range of undergraduate engineering programs, each with a duration of four years. Departments include Computer Engineering (120 intake), Information Technology (60), Electronics and Telecommunication Engineering (60), Electronics Engineering (60), and Electrical Engineering (60). The curriculum is aligned with the University of Mumbai’s guidelines and follows a semester-based evaluation pattern. Diploma holders can gain lateral entry into the second year. Emphasis is placed on practical learning through workshops, industrial training, and project work. The departments regularly organize technical fests, coding events, seminars, and competitions, supported by active departmental associations.

POSTGRADUATE PROGRAMS

The institute also offers postgraduate programs (M.E.) in selected branches, focusing on advanced technical studies and research. Students are encouraged to publish research papers and participate in funded projects.

FEE STRUCTURE (2024-2025)

The tuition fee for the first year ranges between ₹99,208 and ₹1,26,875 depending on the course. Additional charges include development fees, exam fees, laboratory charges, and a refundable library deposit. Various scholarships are available for merit holders, economically weaker sections, reserved categories, and minorities. Fees can be paid via demand draft, online gateways, or educational loans. The refund policy complies with DTE norms, allowing a full refund minus ₹1,000 if the admission is canceled before the deadline.

LIBRARY FACILITIES

The library hosts over 28,000 volumes and more than 7,000 titles covering engineering, management, and general subjects. Students have access to international and national print journals, as well as e-resources like IEEE/IEL, Springer, Elsevier, ScienceDirect, J-Gate, NPTEL, and MOOCs. The facility includes reading rooms, scanning and printing services, and a digital library with 24x7 access to e-journals. The issuing system is fully automated using barcode technology and integrated library software. Library hours are from 8 AM to 6 PM on weekdays, with extended timings during exams.

FACULTY

The college has a team of over 80 qualified faculty members, including PhD holders, M.Tech, and postgraduate degree holders. Guest lectures by industry experts and academicians are regularly conducted. Teaching incorporates real-world examples, blended learning, and problem-solving methods. Faculty members actively publish in journals, present at conferences, and secure grants from AICTE, UGC, and DST. They also attend workshops, AICTE-STTPs, and ATAL FDPs to enhance their teaching skills.

INFRASTRUCTURE AND FACILITIES

The eco-friendly, Wi-Fi-enabled campus is under 24/7 CCTV surveillance and has well-maintained gardens. Classrooms are air-conditioned and equipped with smart boards and projectors. Laboratories contain modern equipment including IoT kits, embedded systems, and AI-ML setups. Specialized labs include the Cloud Computing Lab and Cyber Security Lab. The computer centers feature high-end desktops and licensed software. The auditorium and seminar halls are centrally air-conditioned and AV-equipped. The canteen offers multi-cuisine hygienic food at subsidized rates. Sports facilities include cricket and football grounds, indoor games, and a gymnasium. The Innovation Lab features robotics kits, 3D printers, and supports startup incubation.

ACADEMIC CALENDAR AND TIMETABLE

The academic year runs in two semesters: June to November (odd semester) and December to May (even semester). The academic calendar includes course start/end dates, internal assessments, examination dates, and events. Department-specific timetables detail theory, practical, and tutorial sessions, and are accessible via the college ERP and website.

EXAMINATION DETAILS

Internal assessments consist of unit tests, assignments, presentations, and practical/oral exams. University examinations, governed by the University of Mumbai, include practical and theory components. Online tests are administered using Learning Management Systems. The Exam Cell manages registrations, hall tickets, and results, which are announced within 45 days. Support is available for backlog guidance, revaluation, and result rechecking.

PLACEMENTS

The Training & Placement Cell actively engages with recruiters and prepares students for careers. The average salary package ranges from ₹3.5 to ₹4.2 LPA, with top offers exceeding ₹10 LPA. Recruiters include TCS, Infosys, Wipro, Capgemini, Accenture, L&T, Justdial, NSEIT, Reliance Jio, and startups. Internships are mandatory for third-year students. The TPC provides training in aptitude tests, technical interviews, soft skills, and resume writing.

ADMISSION PROCESS

Eligibility requires passing 10+2 with PCM subjects and a minimum of 50% marks (45% for reserved categories) along with valid MHT-CET or JEE Main scores. Admission is through the Central Admission Process (CAP), as well as institute-level and minority quotas. Required documents include SSC and HSC marksheets, entrance exam scorecards, leaving certificate, migration certificate, and applicable caste/income certificates. The college provides counseling support and helpline services for admission assistance.

ACCOMMODATION

The college does not have on-campus hostel facilities. However, students can find PG accommodations and rental flats in nearby areas like Malad, Goregaon, and Kandivali. These are well-connected by public transport and offer mess and tiffin services. The locality is considered safe and convenient.

EXTRA-CURRICULAR ACTIVITIES

ACE organizes a wide range of extracurricular activities. The annual tech fest 'Techithon' and various departmental expos and paper presentations promote technical skills. Cultural events like 'Atharvotsav', Freshers' Day, and Annual Day showcase students' artistic talents. The college encourages sports participation through inter-college tournaments and a dedicated sports day. Professional chapters like IEEE, ISTE, CSI, IETE, and SAEINDIA operate on campus. Various clubs such as the Robotics Club, Music Club, Dance Club, Debate Society, and Photography Club provide platforms for creative expression. The NSS unit actively participates in social outreach programs.

STUDENT ACHIEVEMENTS

Students of Atharva College have consistently demonstrated academic excellence, with many securing top ranks in the University of Mumbai examinations. Final-year projects from various departments are frequently selected for prestigious competitions such as Avishkar and the Smart India Hackathon. Several projects have received external funding due to their innovation and relevance. Students regularly win inter-college coding events, hackathons, and IEEE/CSI competitions. The Entrepreneurship Development Cell (EDC) has supported the incubation of student-led startups, with teams participating in national-level business plan contests and even securing seed funding. Internships at leading companies like TCS, L&T, Capgemini, and Reliance offer students industry exposure, complemented by certifications from platforms like Coursera,

AWS Academy, and Microsoft Learn. Students also represent the college in national cultural and youth events and are often selected as brand ambassadors for top organizations.

CONTACT INFORMATION

Atharva College of Engineering is located at Charkop Naka, Malad (West), Mumbai, Maharashtra, India – 400095. You can reach the college by phone at 022-40294949 or 022-40294956. For inquiries, email ace@atharvaeducation.com. More information is available on the college website https://atharvacoe.ac.in. Follow the college on Facebook (@atharvacoe), Instagram (@atharva_college), and LinkedIn (linkedin.com/school/atharva-college-of-engineering).

About Us

An ever increasing demand for Technical Education in Maharashtra as a whole and in Mumbai in particular, has created fierce competition. As a result many meritorious students are deprived of the opportunity of taking engineering education. A large number of students are required to migrate from Mumbai to some other University. This results not only in extra expenditure for the parents but also leads to depression amongst the students. After careful observations, through Survey of different institutions 'The Atharva Educational Trust' has decided to come forward forthe noble cause of technical Education and open the new Technical institution which will impart technical education in High – Tech areas like Computers, Information Technology and Electronics & Telecommunication, Electronics Engineering.

'The Atharva Educational Trust' believes in producing well discipline, practical oriented, highly knowledgeable Engineers to serve not only for themselves butforthe society and nation. To makethis dream come true the Trust has developed the infrastructure first and proved their merit in getting recognition from Govt, of Maharashtra & A.I.C.T.E. New Delhi, the body for promoting technical education of high quality in India established by Govt, of India.

The Atharva Educational Trust' owns spacious campus in Malad, where an ideal educational 'Atharva College of Engineering' campus has grown in leaps and bound in short span of time. The Institute has started functioning from the academic year 1999-2000 & has achieved good results in the University of Mumbai since then. The institution has developed laboratories with sophisticated equipments. Learned, disciplined and qualified staff is going to be another attraction for the students in this institution.

- Atharva was established in the year 1999 for the noble cause of Engineering education in western suburbs.
- Presently caters to the need of 800+ students in various branches.
- ISO 9001:2015,21001:2018,14001:2015 Certified Institute.

AET's Educational Complex is set up on a gigantic and spacious campus of 6 acres situated in the heart of Western suburbs at Malad with convenient access by bus / train. With classic architecture & interiors, beautiful green landscaping and ambience, state-of-the art infrastructure and other sophisticated equipment, AET Complex is the perfect setting of a professional environment with a friendly touch to the scene.

Board of Governers

The purpose of the Governance Committee Terms of Reference is to ensure that the responsibilities and expectations delegated to the Governance Committee by the Board of Governors are clear and well defined.

The Board of Governors has following distinguished members:

Sr.	**Member**	Designation
1.	Hon. Shri. Sunil Rane	Chairman of the committee
2.	Dr. Ramesh Kulkarni	Secretary of the committee
3.	Dr. P N Nemade	Faculty
4.	Dr. Jyoti Mali	Faculty
5.	Mr. Harsh Modi	Industrialist
6.	Mr. Manish Sharma	Industrial Executive
7.	Dr. Pramod Naik	DTE Nominee
8.	Dr. Shubha Pandit	University Nominee
9.	Dr. Amit Dutta	AICTE Nominee
10.	Mr. (Adv.)Shreekant Jaiswal	Advocate High Court

Industry Institute Partnership Cell:

Sr.	Name of Member	Designation	Position
1.	Dr. Ramesh Kulkarni	Principal	Chairman
2.	Dr. Ulhashkumar Gokhale	Professor	Convener / Main Co-ordinator
3.	Mr. Omprakash Barure	Director BITC	Industry Representative
4.	Mr. Piyush Dave	Founder Mhmeduations	Industry Representative
5.	Mrs. Sangeeta Kotecha	Assistant Professor Electrical	Coordinator
6.	Mr. Mahendra Patil	Assistant Professor	Coordinator
7.	Dr. Jyoti Mali	Vice Principal, (Admin & HR)	Member
8.	Mrs. Garima Gujar	Assistant Professor (EDC)	Member
9.	Mrs. Deepali Maste	Assistant Professor (IIC Convener)	Member
10.	Mr. Mohan Kumar	Assistant Professor (E-Cell)	Member
11.	Ms. Dhanashree Salvi	Assistant Professor (i-Mac)	Member
12.	Mrs. Priyanka Tripathi	Assistant Professor	Member
13.	Mrs. Sucheta Gaikwad	Assistant Professor	Member

Industry Institute Interaction Committee Members:

Sr.	Name of Member	Designation	Position
1.	Dr. Ramesh Kullarni	Principal	Chairman
2.	Dr. Jyoti Mali	Vice Principal(Admin & HR)	Member
3.	Mrs.Sangeeta Kotecha	HOD, Electrical	Member
4.	Mr.Mahendra Patil	Assistant Professor	Member
5.	Mrs.Nileema Pathak	Assistant Professor	Member
6.	Mrs. Garima Gurjar	Training & Placement Officer	Faculty Representative (T & P)

Internal Complaint Committee

In compliance with the Supreme Court Judgment and guidelines particularly against sexual harassment of women at work places (Prevention, Prohibition and Redressal), Act Sexual Harassment 2013) as per the guidelines of UGC, a Committee against Sexual Harassment (ICC) Internal Complaints Committee is reconstituted to provide a healthy and congenial atmosphere to the staff and students of the College. Committee members for Academic year 2024-25

Internal Complaint Committee					
Sr.	Name	Designation	Position	Mail-id	Contact Number
1.	Dr. Ramesh Kulkarni	Principal	Chair Person	drrameshkulkarni@atharvacoe.ac.in	022-40294949

2.	Dr. Pragya Jain	Assistant Professor	Convener	pragyajain@atharvacoe.ac.in	022-40294949
3.	Ms. Mahalaxmi Palinje	Assistant Professor	Faculty Member	mahalaxmipalinje@atharvacoe.ac.in	022-40294949
4.	Ms. Nileema Pathak	Assistant Professor	Faculty Member	neelimapathak@atharvacoe.ac.in	022-40294949
5.	Ms. Renuka Nagpure	Assistant Professor	Faculty Member	renukanagpure@atharvacoe.ac.in	022-40294949
6.	Ms. Deepali Shinde	Senior Accountant ACE	Non Teaching Representative	deepali0922@gmail.com	022-40294949
7.	Ms. Upasana Shetty	NGO Member	General Secretary	upasana.atharva@gmail.com	022-40294949
8.	Ms.Goriporwal	Student	TE Student Member	goriporwal8@gmail.com	022-40294949
9.	Ms.Sharvari Padiyar	Student	TE Student Member	sharvaripadiyar@gmail.com	022-40294949
10.	Ms.Sanika Utekar	Student	TE Student Member	utekarsanika24@gmail.com	022-40294949

SC / ST Cell Committee Members

Sr.No	Name of the Committee Member	Position	Designation	Email Id	Mobile No
1.	Pranoti Nage	Member	Assistant Professor	pranotinage@atharvacoe.ac.in	7276837977
2.	Ashwini Gaikwad	Member	Assistant Professor	ashwinigaliya@atharvacoe.ac.in	9881408262
3.	Sneha Kavade	Member	Non-teaching Staff	sneha.kavade74@gmail.com	9967908336
4.	Sandip More	Member	Exam-Section Staff	Sandeepsavy12345@gmail.com	9324671834
5.	Mahendra Kamble	Member	Peon	kamblemahendra452@gmail.com	9892318435

College Development Committee

Academic Year 2024-25

As Per “Maharashtra Government Gazette”, on the 11th January 2017.

The Members of the College Development Committee from August 2022 to August 2027 for AET’s Atharva College of Engineering will be as below

Sr. No.	Name of the Members	Position	Designation
1.	Shri. Sunil Rane	Chairperson of the Management	Founder Secretary, AET
2.	Dr. P. N. Nemade	Nominee of the Secretary of the Management	Director, ACE
3.	Dr. Bhavin Shah	Head of Department nominated by the Principal	Associate Professor, ACE
4.	Dr. Pragya Jain	Co-coordinator Internal Quality Assurance Cell	Assistant Professor, ACE
5.	Dr. Rajendra Mahajan	Teacher in the College or Recognized Institution	Assistant Professor, ACE
6.	Dr. Ritu Sharma	Teacher in the College or Recognized Institution	Associate Professor, ACE
7.	Dr. Jyoti Mali	Teacher in the College or Recognized Institution	Associate Professor, ACE
8.	Ms. Deepali Shinde	Non Teaching Employee	Senior Accountant, ACE
9.	Prof. J.M.Nair(Academics)	Nominee of the chairperson ex – officio Chairperson Local person	Principal VESIT Mumbai

		Nominated by Management in Consultation with Principal	
10.	Mr. Ashweni Jain (Industry)	Local person Nominated by Management in Consultation with Principal	AVP Adani Electricity Mumbai.
11.	Mr. Sarang Ambadkar (Research)	Local person Nominated by Management in Consultation with Principal	Founder at FeelGood EcoNurture LLP
12.	Dr. Aman Chawla (Social)	Local person Nominated by Management in Consultation with Principal	Co - Chairman, Vocational Excellence Rotary International District 3141
13.	Mr.Chaitanya Dandekar	President of College Student Council (Ex-officio)	Student(G.S)
14.	Ms.Pranjal Zende	Secretary of College Student Council (Ex-officio)	Student(AH)
15.	Dr.Ramesh Kulkarni	Principal of college (Member Secretary) Ex-officio	Principal, ACE

Eligibility criteria for Admission 2024-25

Candidates who have passed the qualifying examination other than the H.S.C.(Std.XII) examination of a Divisional Board of Maharashtra State Board of Secondary and Higher Secondary Education will be required to produce at least a provisional statement of eligibility from the Registrar, University of Mumbai, declaring them eligible for admission to the First Year class of the B.E. degree course. The provisional statement of eligibility is issued by the Registrar of the University of Mumbai to a candidate who is primafacie eligible for admission to the First Year Class of the B.E. degree course on his making an application in the prescribed form and payment of the prescribed fee.

• The blank forms are available at college office.

• Students must submit the duly filled form back in the office & collect the Provisional Eligibility Certificate from the college office.

EDUCATIONAL QUALIFICATION

To be eligible for

A] FE admission the candidate should have:

1] Maharashtra State Candidature Candidates.

ii) The Candidate should be an Indian National;

(ii) Passed HSC or its equivalent examination with Physics and Mathematics as compulsory subjects along with one of the Chemistry or Biotechnology or Biology or Technical Vocational subject or Computer Science or Information Technology or Informatics Practices or Agriculture or Engineering Graphics or Business Studies and obtained at least 45 % marks (at least 40 % marks, in case of Backward Class categories, Economically Weaker Section and Persons with Disability category candidates belonging to Maharashtra State), in the above subjects taken together; and the Candidate should have appeared in all the subjects in CET and should obtain non zeroscore in CET conducted by the Competent Authority; or

ii) Passed Diploma in Engineering and Technology and

obtained at least 45 % marks (at least 40 % marks, in case of Backward Class categories, Economically Weaker Section and Persons with Disability category candidates belonging to Maharashtra State); or

2. All India Candidature Candidates, Union Territory of Jammu and Kashmir and Union Territory of Ladakh Migrant Candidature Candidates.

i) The Candidate should be an Indian National;

ii) Passed HSC or its equivalent examination with Physics and Mathematics as compulsory subjects along with one of the Chemistry or Biotechnology or Biology or Technical Vocational subject or Computer Science or InformationTechnology or Informatics Practices or Agriculture or Engineering Graphics or Business Studies and obtainedat least 45 % marks (at least 40 % marks, in case of Backward Class categories, Economically Weaker Section and Persons with

Disability category candidates belonging to Maharashtra State) in the above subjects taken together; and should obtain non zero positive score in
JEE (Main) B.E./B.Tech or the candidate should have appeared in all the subjects in CET and should obtain non zero score in CET conducted by the Competent Authority. However preference shall be given to the candidate obtaining non zero positive score in JEE (Main) B.E./ B.Tech over the candidates who obtained non zero score in CET; Or
(ii) Passed Diploma in Engineering and Technology and obtained at least 45 % marks (at least 40 % marks, incase of Backward Class categories, Economically Weaker Section and Persons with Disability category candidates belonging to Maharashtra State)
A] Direct Second Year (Lateral Entry) -
For Maharastra State Candidature and All India Candidature Candidates
I] Passed Diploma Course in Engineering and Technology with at least 45% marks ((at least 40% marks in case of Backward class categories and Persons with Disability belonging to Maharashtra State only) in appropriate branch of Engineering and Technology from an All India Council for Technical Education or Central or State Government approved Institution or its equivalent; OR
I] Passed B.Sc. Degree from Recognized University as defined by UGC or Association of Indian Universities and obtained at least 45% marks (at least 40% marks in caseof Backward class categories and Persons with Disability belonging to Maharashtra State only) and passed BSCwith Mathematics as a subject Provided that students belonging to this category shall clear the subjects of Engineering Graphics/Engineering Drawing and Engineering Mechanics of the first year Engineering Program along with second year subjects.
ii) Any other criterion declared by appropriate authority from time to time.
• Besides above the eligibility criteria, The Directorate of Technical Education, Mumbai is the Competent Authority for admission to First Year & Direct Second YearEngineering 2024-25. The updated information shall be available on https://fe2024.mahacet.org/StaticPages/HomePage
Admission rules will be as per authority directing time to time foracademic year 2024-25
(Note:- Admission rules, Eligibility criteria & Intake capacity will be as per DTE,ARA,Govt. of Maharashtra & AICTE policy for A.Y. 2024-2025)

Computer Engineering

Greetings from Computer Engineering Department!!! Computer Engineering is a versatile and evergreen branch of engineering with current trends in various fields like IOT (Internet of things), artificial intelligence, robotics, machine learning, virtual reality, cognitive technology, cloud computing, intelligent apps. blockchain etc. Department of Computer Engineering at Atharva College of Engineering has achieved 100% result for final year students last year. The Department started in the year 1999 and currently has a vibrant student body numbering around 500 and faculty numbering nearly 18. It seeks to combine excellence in education with service to the industry.

Department has well qualified and dedicated faculty with well-developed laboratories. We impart quality engineering education through sound theoretical knowledge, hands on laboratory as well as computational skill and exposure to recent technologies by visiting industries & expert talk. The well-equipped labs include a state-of-the-art iMac lab, virtual software, virtual labs, NPTEL lectures provided by the college which gives platform and tremendous opportunity for the students to keep themselves updated with latest technologies. 'Bit-Byte' the e-magazine is one among the many endeavour's taken by the Department to mould the students in all fronts and make them industry-ready. It has commendable initiatives for the student growth which includes, training and placement activities right from the second year, spoken tutorials project by IIT-B, conducting technical events under professional bodies such as the CSI Chapter, IEEE and many more. The college is geared up for International conference, the faculty members and students strived relentlessly in coordinating the activities and publishing papers of high technical value.

To instill academics in Computer Engineering, department provides conducive and disciplined environment for lifelong learning. Students are nurtured to build the right attitude, extend and investigate software systems in all domains. We provide conducive and disciplined environment for lifelong learning. Students with the help of faculties are constantly striving to excel to show high level of professional competence & make incredible mark nationally & internationally.

Several of our alumni hold important positions in the industry and academia worldwide. Students have been recently placed, both in India and abroad, in several leading national and international companies.

All these achievements of the department would not have been possible without the enthusiastic and dedicated work of our past and present faculty members. I wish good luck to all students, faculty and look forward for your kind patronage.

Dr. Suvarna Yogesh Pansambal

Head of the Computer Engineering Department

Advisory Committee Members:

Sr. No	Board Member Name	Designation / Affiliation	Stakeholder
1	Dr. Ramesh Kulkarni	Principal ,Atharva college of Engineering, Mumbai	Head of the Institute
2	Dr. Suvarna Pansambal	Assosciate Professor and Head of Department of CMPN,ACE	Chairman, HOD, ACE
3	Prof. Mahendra Patil	Assistant Professor, CMPN Dept, ACE	Faculty, ACE
4	Prof. Shweta Sharma	Assistant Professor, CMPN Dept, ACE	Faculty, ACE
5	Prof. Bhavana Arora	Assistant Professor, CMPN Dept, ACE	Faculty, ACE
6	Prof. Pranali Bhusare	Assistant Professor, CMPN Dept, ACE	Faculty, ACE
7	Prof. Shaily Goyal	Assistant Professor, CMPN Dept, ACE	Faculty, ACE
8	Mrs.Jaymala Salunkhe	Team Developer, Bank of America continuum, Mumbai	Industry Specialist
9	Mrs. Kavita Sonawane	H.O.D. St. Francis Institute of Technology, Borivali (West) Mumbai	Senior Academician
10	Mrs Hetal Shah	Homemaker	Parent
11	Shiva Gupta	Technical Lead, TCS	Alumni Member
12	Mr. Chirag Desale	Alumni Student	Alumni Member
13	Mr. Shree Agarwal	Working in Arcon, 2024 passout	Alumni Member
14	Ms. Shruti Balekar	Working in TCS,2024 passout	Alumni Member
15	Anhad Meshri	BE CMPN Student	Student Representative
16	Parth Mhatre	TE CMPN Student	Current Student Representative
17	Kartik Chowdhury	TE CMPN Student	Current Student Representative
18	Parth Pednekar	TE CMPN Student	Student Representative

Dr. Suvarna Y. Pansambal
HOD & Associate professor
PhD(CSE),M.Tech (IT), M.E(CE), B.E (CE)
18.4 Yrs

Ms. Shweta Sharma
Asst. Professor
PhD (CSE Pursuing),M.Tech.(CSE), B.E.(CSE)
19.6 Years

Ms. Ashwini Gaikwad
Asst. Professor
PhD (CE Pursuing),M.E.(CE),B.E.(CE)
6.11 Years

Ms. Bhavna Arora
Asst. Professor
PhD (CSE Pursuing), M.Tech.(CSE), B.E.(CE)
22.6 Years

Dr. Yogita Shelar
Assistant Professor
PhD(CSE),M.E (IT), B.E.(CMPN)
10.3 Years

Ms. Anuja Gaikwad
Asst. Professor
PhD (CE Pursuing),M.E.(CE) (Computer), B.E.(Computer)
5.1 Years

Mr. Mahendra Patil
Asst. Professor
PhD (CSE Pursuing),M.E. (IT), B.E.(CSE)
20.1 Years

Ms. Pranali P Bhusare
Asst. Professor
PhD (CSE Pursuing),M.E.(CE),B.E.(IT)
5.2 Years

Ms. Shriya Salunkhe
Asst. Professor
M.E(CE) Computer, B.E Computer
3.8 Years

Prof. Nileema Pathak
Assistant Professor
PhD (CSE Pursuing),M.E. (EXTC), B.E.(EXTC)
27.2 yrs

Ms. Shaily Goyal
Asst. Professor
PhD (CE Pursuing),M. Tech.(CSE), B. Tech.(CSE)
4.7 Yrs

Ms. Ashwini Kachare
Assistant Professor
M.E.(CSE),B.E.(IT)
6.7 Years

Ms. Aswathy Pillai
Asst. Professor
M.Tech.(CSE), B.Tech.(CSE)
4.6 Yrs

Ms. Veena Gajbhiye
Assistant Professor
M.tech(CSE) , B.E (IT)
3 Years

Ms. Swikruti Dongaonkar
Assistant Professor
M.E. (IT),B.E.(IT)
3.6 Years

Prof. Shweta S Sharma
Assistant Professor
M.tech(VLSI Design) , B.E (EXTC)
9.2 Years

Toppers List AY 2024-25 (ODD)

Sem 3			
POSITION	**NAME OF STUDENTS**	**CGPA**	**YEAR OF PASSING**
FIRST	ADEKAR NITESH GORAKHNATH	10	2024-2025
FIRST	BHAVANI MURALI	10	2024-2025
FIRST	GHANEKAR ANUSHKA MAHESH	10	2024-2025
FIRST	GHARAT VED SURYAKANT	10	2024-2025
FIRST	SAHU ROHITKUMAR GOPAL	10	2024-2025
SECOND	TOGARIKAR HARSH NARESH	9.91	2024-2025
THIRD	SHELAR PRANAV MAHENDRA	9.87	2024-2025
THIRD	SUVARNA LEISHA SHIVAJI	9.87	2024-2025
THIRD	YADAV ADITI ASHOK	9.87	2024-2025

Sem 5			
POSITION	**NAME OF STUDENTS**	**CGPA**	**YEAR OF PASSING**
FIRST	RIKAME DURVA RAGHUNATH	9.87	2024-2025
SECOND	YADAV ABHISHEK RAMESH	9.83	2024-2025
SECOND	SHIVRAJ T	9.83	2024-2025
SECOND	MANJALKAR ADITYA SANJAY	9.83	2024-2025
THIRD	MAHIPATRAO SAMIKSHA	9.83	2024-2025

Sem 7			
POSITION	**NAME OF STUDENTS**	**CGPA**	**YEAR OF PASSING**
FIRST	Rade Nikita Nitin	10	2024-2025
SECOND	Pandey Priyanka Kailash	9.45	2024-2025

SECOND	Parab Chaitrali Chandrashekar	9.45	2024-2025
SECOND	Kashyap Shivam buzrat	9.45	2024-2025
THIRD	Pankar Amol Krishna	9.32	2024-2025
THIRD	Yadav Sakshi Satish	9.32	2024-2025
THIRD	Kanojia Priyanshi Rajesh	9.32	2024-2025

Toppers List AY 2023-24 (EVEN)

Sem 4			
POSITION	**NAME OF STUDENTS**	**CGPA**	**YEAR OF PASSING**
FIRST	HAQUE MOHD GUFRANUL HAMIDUL (JAMILA)	10	2023-2024
FIRST	YADAV ABHISHEK RAMESH (MALTI)	10	2023-2024
FIRST	MANJALKAR ADITYA SANJAY (PRERNA)	10	2023-2024
SECOND	GUJAR SAKSHI RAJESH (RUTUJA)	9.88	2023-2024
SECOND	SHRIYAN AKSHIT YOGESH (MALLIKA)	9.88	2023-2024
SECOND	PATEL DHRUVI PRADEEP KUMAR (DIPTI)	9.88	2023-2024
SECOND	KAVATKAR SAHIL SANJAY (SWATI)	9.88	2023-2024
SECOND	RIKAME DURVA RAGHUNATH (RASHMI)	9.88	2023-2024
THIRD	ZORE SWARAJ SANDEEP (SNEHA)	9.75	2023-2024
THIRD	GAIKWAD SNEHA SANTOSH (RAMA)	9.75	2023-2024
THIRD	SONKULE VIRENDRA HEMANT (VIJAYA)	9.75	2023-2024
THIRD	ARUNTHATHIYAR NIKSHAY SHINGARVELU (SHANTI)	9.75	2023-2024

Sem 6			
POSITION	**NAME OF STUDENTS**	**CGPA**	**YEAR OF PASSING**
FIRST	KANOJIA PRIYANSHI RAJESH	9.87	2023-2024
SECOND	SINGH BHOOMIKA SANTOSH	9.87	2023-2024
SECOND	RADE NIKITA NITIN	9.87	2023-2024
SECOND	KULKARNI OM VILAS	9.87	2023-2024
SECOND	KULKARNI OM VILAS	9.87	2023-2024
THIRD	MESHRI ANHADH BHAVESH	9.74	2023-2024
THIRD	CHAUDHARI RUSHIRAJ YUVRAJ	9.74	2023-2024

Sem 8			
POSITION	**NAME OF STUDENTS**	**CGPA**	**YEAR OF PASSING**
FIRST	DESALE CHIRAG NILESH KUMAR	9.82	2023-2024
SECOND	AHEZAM AHEWAR KHAN MEH JABEEN	9.73	2023-2024
SECOND	CHAHANDE SEJAL SANJAY	9.73	2023-2024
THIRD	REDKAR GAURAV PRAKASH (PRACHI)	9.68	2023-2024

Toppers List AY 2023-24 (ODD)

Sem 3			
POSITION	**NAME OF STUDENTS**	**CGPA**	**YEAR OF PASSING**
FIRST	HAQUE MOHD GUFRANUL HAMIDUL (JAMILA)	10	2023-2024
FIRST	PATEL DHRUVI PRADEEP KUMAR (DIPTI)	10	2023-2024

FIRST	RIKAME DURVA RAGHUNATH (RASHMI)	10	2023-2024
FIRST	YADAV ABHISHEK RAMESH (MALTI)	10	2023-2024
FIRST	MANJALKAR ADITYA SANJAY (PRERNA)	10	2023-2024
SECOND	SHRIYAN AKSHIT YOGESH (MALLIKA)	9.87	2023-2024
THIRD	PANDEY ANURAG RAMESH (PRAMILA)	9.74	2023-2024

Sem 5			
POSITION	**NAME OF STUDENTS**	**CGPA**	**YEAR OF PASSING**
FIRST	KANOJIA PRIYANSHI RAJESH	9.87	2023-2024
THIRD	PANDEY PRIYANKA KAILASH	9.78	2023-2024
SECOND	KADAM SHRUTI NARESH (NEHAL)	9.74	2023-2024

Sem 7			
POSITION	**NAME OF STUDENTS**	**CGPA**	**YEAR OF PASSING**
FIRST	BANDIVADEKAR DHRUVESH SHRIPAD	10	2023-2024
SECOND	DESALE CHIRAG NILESH KUMAR	9.73	2023-2024
SECOND	SINGH BHOOMIKA	9.73	2023-2024
THIRD	NIKAM PRANAV SHASHIKANT	9.59	2023-2024

Toppers List AY 2022-23 (ODD)

Sem 3			
POSITION	**NAME OF STUDENTS**	**CGPA**	**YEAR OF PASSING**
FIRST	KANOJIA PRIYANSHI	10	2023

SECOND	PANDEY PRIYANKA	9.61	2023
THIRD	SINGH BHOOMIKA	9.48	2023

Sem 5			
POSITION	**NAME OF STUDENTS**	**CGPA**	**YEAR OF PASSING**
FIRST	DESALE CHIRAG NILESH KUMAR	9.91	2023
SECOND	NIKAM PANAV SHASHIKANT	9.91	2023
THIRD	AHEZAM AHEWAR KHAN	9.84	2023

Sem 7			
POSITION	**NAME OF STUDENTS**	**CGPA**	**YEAR OF PASSING**
FIRST	DHUMAL SNEHA KRISHNA	10	2023
SECOND	NAMBIAR JAANVI DILEEP	9.73	2023
THIRD	SARGAR NEHA MUKUND	9.45	2023
SECOND	KHAVARE SHUBHAM VITHAL	9.45	2023
THIRD	YADAV DEEPAK JANVED SINGH	9.45	2023

Toppers List AY 2021-22 (EVEN)

SE			
POSITION	**NAME OF STUDENTS**	**CGPA**	**YEAR OF PASSING**
FIRST	CHIRAG NILESH DESALE	10	2022
SECOND	SHARMA ANIKET ARJUN	10	2022
THIRD	VARTAK VEDANT SHREYAS	9.63	2022
TE			
POSITION	**NAME OF STUDENTS**	**CGPA**	**YEAR OF PASSING**
FIRST	BHARADVA BIJAL NITESH	10	2022

SECOND	NAMBIAR JAANVI DILEEP	9.87	2022
THIRD	MISHRA VISHAL NANDESHWAR	9.87	2022
THIRD	KHAVARE SHUBHAM VITHAL	9.87	2022
BE			
POSITION	**NAME OF STUDENTS**	**CGPA**	**YEAR OF PASSING**
FIRST	VAGHASIA SHREYAS RAMESHBHAI	9.91	2022
SECOND	NEWALKAR VEENALI KALAKANT	9.89	2022
THIRD	CHODANKAR PRACHI ANAND	9.86	2022

Toppers List AY 2020-21 (EVEN)

SE			
POSITION	**NAME OF STUDENTS**	**Pointers**	**YEAR OF PASSING**
FIRST	SAWANT AARYAN UMESH	10	2021
SECOND	DHUMAL SNEHA KRISHNA	10	2021
SECOND	JADHAV RUTUJA VIJAY	10	2021
THIRD	GHOLE AAKASH RAJESH	10	2021
TE			
POSITION	**NAME OF STUDENTS**	**Pointers**	**YEAR OF PASSING**
FIRST	VAGHASIA SHREYAS RAMESHBHAI	10	2021
SECOND	DAS ANKIT KUMAR DILIP KUMAR	10	2021
THIRD	GONJARI SHREYA SANDESH	10	2021
BE			
POSITION	**NAME OF STUDENTS**	**Pointers**	**YEAR OF PASSING**
FIRST	AJGAONKAR AMOL VIDHYADHAR	9.66	2021
SECOND	ERLA MEGHNA GAJANAND	9.58	2021

THIRD	DAMANI KEDAR PARESH	9.52	2021

Toppers List AY 2019-20 (ODD)

SE			
POSITION	**NAME OF STUDENTS**	**POINTERS (in CGPI)**	**YEAR OF PASSING**
FIRST	CHODANKAR PRACHI ANAND	10	2019
	DHURI VAISHNAVI LAXMAN		
	DOSHI KRUPA DHIREN		
	SINGH ADITYA SUJITKUMAR		
	VAGHASIA SHREYAS RAMESHBHAI		
SECOND	GHUMATE ASHWIKA RAMESH	9.92	2019
THIRD	NEWALKAR VEENALI KALAKANT	9.81	2019

TE			
POSITION	**NAME OF STUDENTS**	**POINTERS (in CGPI)**	**YEAR OF PASSING**
FIRST	AJGAONKAR AMOL VIDHYADHA	10	2019
SECOND	GAJJAR BHAVIN GIRISH	9.85	2019
	SHARMA NEHA CHANDRAKANT		
THIRD	SHAH NISHTHA KAMLESH	9.78	2019

BE Sem VII 2019			
POSITION	**NAME OF STUDENTS**	**POINTERS (in SGPI)**	**YEAR OF PASSING**
FIRST	RAJARAM PRIYANKA ANANDA	9.62	2019
SECOND	MISHRA MRITYUNJAI RAJESH	9.83	2019
THIRD	SHAH TANVI PARESH	9.31	2019

Toppers List AY 2018-19 (EVEN)

SE			
POSITION	**NAME OF STUDENTS**	**POINTERS (in CGPI)**	**YEAR OF PASSING**
FIRST	TANISHKA SUDHIR BOMBE	10	2019
	BHAVIN GIRISH GAJJAR		
SECOND	PAREENA SUNIL PADWAL	9.85	2019
	NISHTHA KAMLESH SHAH		
	AMOL VIDHYADHAR AJGAONKAR		
THIRD	MIHIR MANOJ SIRCAR	9.7	2019
	AASHNA ANIMESH SHROFF		

TE Sem VI 2019			
POSITION	**NAME OF STUDENTS**	**POINTERS (in SGPI)**	**YEAR OF PASSING**
FIRST	KASA KUNAL KAILASH PADMA	9.85	2019
	SHAH HARSH DINESHKUMAR		
SECOND	PATEL MAHENDRA TILOKRAM	9.5	2019
THIRD	PALKAR SHUBHAM SHIRISH	9.23	2019

BE Sem VIII 2019			
POSITION	**NAME OF STUDENTS**	**POINTERS (in SGPI)**	**YEAR OF PASSING**
FIRST	HARDIK JOSHI	9.70	2019
	AMOL MASAL		
SECOND	MALLYA SHRUTIKA	9.56	2019
THIRD	DHAKE PAVAN	9.41	2019

AET's ATHARVA COLLEGE OF ENGINEERING

List of Research Paper Publications in International Journal / Conference and National Conference

Department of Computer Engineering

Sr. No	Name of Faculty	No.of Papers Presented / Published			Total No. of Papers Till Date
		International Journal	International Conference	National Conference	
1.	Dr. Suvarna Pansambhal(HOD)	53	42	04	99
2.	Prof. Bhavna Arora	56	56	04	116
3.	Prof. Mahendra Patil	46	45	07	98
4.	Prof. Nileema Pathak	20	24	04	48
5.	Prof. Shweta Sharma	24	24	03	51
6.	Dr. Yogita Shelar	05	27	—	32
7.	Prof. Pranali Bhusare	01	03	01	5
8.	Prof. Shaily Goyal	—	08	—	08
9.	Prof. Ashwini Gaikwad	03	10	—	13
10.	Prof Anuja Gaikwad	03	08	—	11
11.	Prof. Shriya Salunkhe	02	08	—	10
12.	Prof. Ashvini Kachare	—	04	02	06
13.	Prof. Aswathy S	—	05	—	05
14.	Prof. Swikruti Dongaonkar	—	06	—	06
15.	Prof. Veena Gajbhiye	01	04	01	06
16.	Prof. Shweta S Sharma	05	06	01	12

Library Details

Infrastructure:
The Library is located on the second floor & fourth floor Phase – I building. The reading room is spacious, well ventilated and with ample natural light. It has a seating capacity of 150.

Collection
Books:
Total Titles = 3,757
Total Volumes = 34,052
Others:
No. of CD's = 3218
Journals:
Indian = 57
Magazines
Total Types = 04
Technical Magazine
Total Types = 16
Services:
The following services and resources are available to the students and faculty
1. Home Issue of books: Students: A maximum of 3 books are lent for a period of 1 week to the students (can be renewed if book is not in demand) Staff – A maximum of 10 books for a period of 1 month (can be renewed if
necessary)
2. Reference: The following resources are also available for reference:

- Reference Books
- University Examination Question Papers
- University Syllabus
- Project Reports
- Write ups Books from the Reference collection are allowed to be used only in the reading room. These resources
  are not available for home issue.
- The library offers plagiarism detection facilities using the Turnitin software.

3. National Journals : 57
4. E-Journals:

- IEEE
- National Digital Library
- Delnet Membership

5. Internet & Wi-Fi: 20 computers have been provided specially for Internet browsing within the Library. Wi-fi connectivity is also available in the library for using laptops.

6. Magazines: Library subscribes to magazines for general reading and current awareness. These are available for use in the reading room only.

7. Newspapers: Library subscribes to 5 newspapers in English, Marathi & Hindi

E-Newspaper : English and Indian Languages 182

8. Book Bank Scheme (Social Welfare Dept. Govt. of Maharashtra): This scheme is for the benefit of students belonging to the SC Category. Under this scheme, a set of books recommended by the University of Mumbai is given to the students. The students have to utilize the books throughout the semester and return them immediately after the examinations are over.

9. BOOK BANK SCHEME (University of Mumbai): A Financial Assistance to the backward class students (SC/ST/NT/VJNT).

Services:

The library has a membership of INDEST – AICTE Consortium for International e-journals. The library subscribes to IEL Online i.e. IEEE / IEE Electronic Library Online. Users get full access to 241 international journals, 1800+ standards, 8700 conference & proceedings.

Library Staff:

- Dr. Tanuja Deshmukh – Ph.D (Lib & Info Sc.) M.Lib.Sc. M.Phil – Librarian
- Mrs. Swapna Save – Assistant Librarian
- Mrs.Sarika Shahapurkar – Library Clerk
- Mrs. Pratiksha Adarkar – Library Clerk
- Mr. Mangesh Ghare – Attendent

Library Timings: Monday to Saturday – 9.00 a.m. to 6.00 p.m.

Library remains closed on all Public Holidays.

Feedback

ACE has always been on a high growth path. We have a strong commitment to engineering education to provide a vibrant and optimum learning environment to the students in order to help them excel in today's competitive environment. To keep pace with the current technological trends we have a well designed, constantly reviewed syllabus, infrastructure, faculties and other facilities to incorporate all advancements in existing and emerging technologies which gives the students a holistic growth. With the objectives of transforming our students into efficient and capable technical professionals, having sound knowledge with analytical ability, creativity, and professional competence, we impart necessary training to our graduates to make them competent enough to take on the professional responsibility.

Please follow the below links to give your valuable feedback.

Your opinion matters a lot!!

RHYTHM

Rhythm-Ember’24

Event Name:	Rhythm-Ember’24
Date:	14th April to 18th April
Time:	9:00 A.M. to 10 P.M.
Place :	AET CAMPUS
Event details:	Annual Cultural Fest Rhythm-Ember’24
No. of Students beneficiary:	5000
Organized by:	Student Council ‘24

RHYTHM EMBER 2024

The Annual cultural Fest of Atharva Group Of institution was held from 14th April to 18th April.

The theme for the fest was ‘Hogwarts – Embrace the magic within you’. Marathon was the first event of the fest which was held on 14th of April. Numerous people participated in the same.

Inauguration ceremony for the fest was celebrated on 15th April. Multiple evens such as dancing, singing, treasure hunt and so on were organized by the committee.

Participation from other colleges as well as our college were recorded. From 15h of April to 18th of April night events such as live night, fashion night, prom night and DJ night were organized respectively.

The fest was a grand success where students and teachers returned with multiple memories.

Rhythm-Ember’23

RHYTHM EMBER 2023

ATHARVA GROUP OF INSTITUTES has a long standing legacy of organizing various events, out of which, “RHYTHM EMBER”- the annual cultural fest of AGI is the most awaited and sought after event. Each year a number of students come and join us and be a part of this inter collegial festival. Rhythm Ember is a platform to celebrate and bring everyone together.

Rhythm- Ember is based on a unique theme each year and this year’s theme being “DASHAK- Relive the Golden age’. A five-day celebration from 2nd April to the 6th of April. The theme for this year focused on the 90’s, reminiscing the Age of Love, the Age of Beauty the 90’s was truly everything you could have asked for, and it in fact actually took us back in time.

Each year we mark the beginning of our annual cultural fest with a Marathon addressing social causes and achieving its aim. The theme for this year was “AWAAZ- The voice of unsung warriors” an attempt to recall and remember our unsung heros. On 2nd April we began our annual cultural fest RHYTHM EMBER ’23 with Mr Manish Sawant sir and Mr Deepak Kriplani sir as our chief guests.

We started our inauguration ceremony on the 3rd April with the presence of Ms Shruti Sharma and Ms Lekha Prajapati. The upcoming three days at Rhythm Ember’23 were full of 55+ day events like Dance which was graced by the presence of Mr Ankit Sharma we also had MC BEN for the RAP BATTLE event, Mr Bhaygesh Hendre for the singing events, and we had a special stand up performance by THE TALKCITY EVENTS and not just that we had many more events like treasure hunt and hogathon, all these various events were conducted

throughout the vast AGI campus and how can we miss out on the 4 amazing night events which were the LIVE NIGHT, performed by the Pune based band SABALI, RETRO night, PROM night and the start of the show DJ night for all the students to participate and enjoy, we had over 1000+ registrations.

We are extremely very thankful to Shri Sunil ji Rane sir- The Executive President of Atharva Group of Institutes and MLA Borivali for believing in us and giving us this opportunity.

ENTREPRENEURIAL EVENTS

1. BUSINESS MELA

It was one of the most prominent and successful events this year. The main aim of this event was to encourage aspiring entrepreneurs and students to start out their own business avenues through the concept of 'Living their Entrepreneurial Dream'. The participants were provided with various stalls to start out their own ventures and learn the art of selling goods and services to the people. Around 10 stalls of different products such as food, clothes, accessories ,etc were set up in rows in the ground. Young entrepreneurs as well as students from different colleges had displayed their goods in an attractive manner to draw the attention of the customers. A lot of people had visited the stalls every day. This event was one of the best platforms for participants to learn about capital needs to provide services to their consumers by starting out their own innovative business schemes. Participants also learned various entrepreneurial skills such as communication ,marketing ,etc. They were able to know how a particular business works and key points regarding what makes a business a success.

2.Robo Maze

Robomaze was a technical event organized by Ember E-Cell on 5th April,2022. The participants were provided with a car controlled robot which was supposed to be driven through a maze with the help of a remote and reach the end. The player who finished the game in the least amount of time was considered to be the winner. Around 21 students had participated in this game and the winner was rewarded with prizes worth Rs 1000. Students had really enjoyed a lot during this event.

3.Robo Soccer

Robo Soccer was another technical event organized by Ember E-Cell on 4th April,2022. It consisted of a football arena where two players had to compete with each other for maximum goals. The game consisted of 3 rounds where the winner would be promoted to the next round. Goals were supposed to be made by pushing the ball towards the goal post using the robot's front and the player with the maximum number of goals was considered to be the winner. Around 17 students had participated in this game and the winner was rewarded with prizes worth Rs 1000. Students had really enjoyed a lot during this event.

4.Drone Arena

A technical event which was conducted by Ember E-Cell on 6th April,2022. It was a fun game wherein the participants were provided with a drone and they were supposed to complete the racetrack by avoiding the hurdles and hoops in the minimum required time. The player who completed the game in the least time was considered to be the winner. Around 36 students had participated in this game and the winner was rewarded with prizes worth Rs 1000. Students had really enjoyed a lot during this event.

All the winners were graced by exciting goodies and hampers from our Celebrity Guests.

Also we were having "Ms. Mitali Shetty" and "Mr. Vaibhav Ghuge" for our energetic Dance event. Our college was also graced by "Mr. Suraj Chauhan" for our Melodic Rhythm event.

Coming up with our Super bang Night Events..

Sr. No	Events	Guest
1	Live Night	Sabali
2	Retro Night	Dj Raj
3	Prom Night	Dj Raj Bekar
4	DJ Night	Ravator

SPORTON REPORT 2023-24

Sporton’24 is the annual sports fest which was initiated by the Atharva Group of Institutes for all students from 18th March to 20th March. The main objective of the Sports Week is to enhance the personality of the students and help them in their overall development. We at Atharva Group of Institutes believe in all-round development of the students. The Sports Week was being held with great enthusiasm this year, naturally, it was the biggest sporting event of AGI. On18th March the Poinsar Gymkhana (Venue for the Sports Week) was full of all the excited and curious budding athletes. All the students we eagerly waiting for this event. This year we had prepared some new and exciting events. We received an overwhelming response in terms of registrations and participation.

SPORTS INCLUDED

- Athletics (100M , 200M , Relay , Mix Relay , Shotput)
- Cricket
- Football
- Volleyball
- Kabaddi
- Chess
- Carrom

SPORTON 2024 WINNER LIST

SR NO	GAME	RANK	NAME	CLASS
1	CARROM 1 v 1 MEN	1	ADVAIT PARAB	CMPN
		2	YOGESH SANDAM	SE ECS
2	CARROM 1v1 WOMEN	1	SNEHAL SAGARE	TE ELEC
		2	SHRUTI ANGRE	SE ECS
3	CARROM 2 V 2 (MIX)	1	ADVAIT PARAB & ANUDEEP DHAWARE	CMPN
		2	SHUBHAM GOWDA & OM AMBERKAR	INFT
4	CHESS MIX	1	ARYAN GAITONDE	EXTC
		2	SARTHAK TAPARE	TE EXTC
5	LONGJUMP MEN	1	SAMARTH RANE	SE ELEC
		2	AKSHIT SHRIYAN	SE CMPN
		3	ARYAN KOLI	CMPN
6	LONGJUMP WOMEN	1	BHUMEE KAMBLE	SE EXTC
		2	VIDHITA BANE	SE INFT
		3	PRIYANKA	CMPN
7	SHOTPUT MEN	1	PARAS TONDWALKAR	SE EXTC
		2	ARYAN NIMBALKAR	EXTC
		3	CHAITANYA MORE	EXTC
8	SHOTPUT WOMEN	1	ASHLESHA MORE	TE INFT
		2	BHUMEE KAMBLE	SE EXTC
		3	ESHA KAMBLE	SE EXTC
9	100 M MEN	1	SAMARTH RANE	SE ELEC
		2	AKSHIT SHRIYAN	SE CMPN
		3	AVANEESH GAYKAR	SE CMPN
10	100 M WOMEN	1	BHUMEE KAMBLE	SE EXTC
		2	NIMISHA MARCHANDE	TE ECS
		3	ESHA KAMBLE	SE EXTC
11	200 M MEN	1	SAMARTH RANE	SE ELEC
		2	ARYAN KOLI	CMPN
		3	AKSHIT SHRIYAN	SE CMPN
12	200 M WOMEN	1	BHUMEE KAMBLE	SE EXTC
		2	ESHA KAMBLE	SE EXTC
		3	ASHLESHA MORE	TE INFT
13	400 M MEN	1	SAMARTH RANE	SE ELEC
		2	DEVESH SHETTY	TE INFT
		3	AARYA SARFARE	FE ECS
			AKSHIT SHRIYAN	

		1	ADNAN SHAIKH JAY PARMAR ATHARVA PATIL	SE CMPN
14	RELAY MEN	2	SAMARTH RANE BHAVESH ZORE ANKIT JADHAV VIVEK SAWANT	SE ELEC
		3	DEVESH SHETTY SHANTANU PAWAR RAJ SINGH ARYA RANE	TE INFT

		1	ESHA KAMBLE BHUMEE KAMBLE	SE EXTC
		2	SHREYA PAWAR POOJA PATIL SHRAVARI SIDDHI SHIVGAM	TE EXTC
15	RELAY WOMEN	3	VIDHITA BANE AKANKSHYA DAKARE ANUSHKA HIRLOSKAR AMRUTA JAGADALE	SE INFT
		1	SHANTANU BHOITE VRAJ GOHIL ESHA KAMBLE BHUMEE KAMBLE	SE EXTC
		2	AGNEYA PATHARE SHREYA PAWAR VISHRUT VARTAK SIDDHI SHIVGAM	TE EXTC
16	RELAY MIX	3	ABHISHEK PODAR SHRAVANI NAWATHE DHVANI PRANAV	SE INFT
17	TUG OF WAR	1	GAURAV SHUKLA PRANAV KADAM SAMIYA KHAN KIMAYA JOSHI TARAN GAUR ADITYA KARGUTKAR SHASHMIT POOJARY	SE ECS

18	THROWBALL WOMEN	1	SALONI SORAP SANNIDHI SHETTY SANIKA UTEKAR VIDHI RAUT KRISHNA RATHOD SANICA ZORE DIVYA SHEGAR CHETNA SINGH VARSHA SHETTY VAISHNAVI WARANG	SE EXTC
		2	SAMIYA KHAN KIMAYA JOSHI SHRUTI ANGRE PARI KANTHARIYA DIVYA SIDDHI SHWETA CHANDEKAR JIDNYESHA SANKHE	SE ECS
19	VOLLEYBALL MEN	1	AYUSH SANKHE KUNAL SHINDE PRANAY SAGGAM PRANAY DABHAL AMAN GARAJE YATHARTH PARMAR SUMIT CHAVAN NIKUNJ BHANUSHALI ATHARVA WADEKAR	TE CMPN 2
		2	VEDANT KAUSHAL JADHAV SHUBHAM PRATHAMESH ROHAN ROHIT GAURANG	BE ELEC

20	KABBADI MEN	1	HRUTVIK RAMBADE ANKIT JADHAV KIRAN CHAVAN VIVEK SAWANT BHAVESH ZORE KUNAL SAGATHIA NEELAY SHINGANKAR	SE ELEC
		2	ABHISHEK CHAVAN SAHIL BHOSALE PRANAV ROHAN CHAVAN OMKAR PANGELKAR MANTHAN RAUT VISHAL JADHAV SWAPNIL GADIGAONKAR HERAMB JOSHI RONAK GUPTA YASH MHATRE SHUBHAM GURAV VEDANT CHURI	BE EXTC
21	RINK FOOTBALL	1	KUNAL SHINDE GOPAL GADHAVI OMKAR SAWANT PRANAY SAGGAN YATHARTH PARMAR SHOURY PARAB NILAY VARTAK	TE CMPN 2
		2	KAUSHAL JADHAV SHREYASH PANGREKAR SIDDHESH PATTAPIKA NARESH ANURAG AMBHIRE ARYAN ANVEKAR DARSHAN KUCHEKAR	BE ELEC
		1	AYUSH SANKHE NIKUNJ BHANUSHALI SUMIT CHAUHAN AMAN GARAJIA FAIZ SHAIKH YAATHARTH PARMAR GOPAL GANDHAVI KUNAL SHINDHE PRANAY SANGGAM OMKAR SAWANT NOLAY VARTAK GIRRISH SANAP ARYAN KOLI	SE EXTC

22	CRICKET MEN		SHURYA PARAB	
		2	SOHAM SHANE OMKAR AYARE HARSH UPADHAYA VISHAL SANAP ATHARVA WADEKAR ATHARVA SHIRKE HARSH JADHAV NILESH TIWARI SIDDHESH AMEY SURVE SHIVAM SHIKRE	BE EXTC 1

Placements at Atharva College Of Engineering

The cell keeps on inviting various industries and reputed firms for campus recruitment. Reputed industrial houses across the country visit our institute regularly for campus recruitment. The placement cell coordinates with the corporate sector and provides well-developed infrastructure to facilitate the campus selection programs. The cell maintains a very cordial relationship with all the recruiting industries and also prepares the recruited candidates to face the competitive world.

Academic Year 2024-2025

Sr. No.	Name of the Company	Total Offers
01.	Amazon	1
02.	ExcelR Edtech	4
03.	Amazon - AWS	1
04.	Elmack Engineering	1
05.	Nibrus Technologies	2
06.	Arcon	3
07.	Siemens	1
08.	NISIKI India Pvt Ltd	2
09.	Markytics	6
10.	CRP Control Engineers	1
11.	Rite Technologies	2
12.	WattNexx	5
13.	Digiplus IT	3
14.	Capgemini	14
15.	ANIRUDDHA TELEMETRY SYSTEMS PVT	5
16.	Teachnook	1
17.	Bluestone	3
18.	Qspiders	29
19.	TCS	54
20.	Panasonic Life Insurance	2
21.	CMSS	2
22.	PlanetSpark	1
23.	Leadsquared	1
24.	Fabtech	6
25.	Sprint Integrated Solutions Pvt. Ltd.	2
26.	ICICI Prudential AMC	4

27.	Learning Routes	2
28.	Symtronics	3
29.	Chemionix e-Solutions Pvt Ltd	4
30.	LenDen Club	7
31.	Business Octane Solutions Pvt.	1
32.	Sai Weld	2
33.	VIKRAN ENGINEERING LTD.	3
34.	Green Sources Pvt. Ltd	2
35.	Cognizant	9
36.	Efficienergi	1
37.	Antraweb	2
38.	Axium	6
39.	Kotak Mahindra Life Insurance Company Limited	7
40.	KAYANA	1
41.	livesitter	1
42.	XIRCLS	1
43.	KPMG	1
44.	Jaro Education	2
45.	Neoteric Research	4
46.	SYNOPTICS TECHNOLOGIES LIMITED	4
47.	Fourth Signal	2
48.	Cognitus	1
49.	Omron	1
50.	Nucsoft	4
OVER ALL		238

TOTAL OFFERS RECEIVED 2023-2024 (Ongoing)

Sr. No.	Name of the Company	Total Offers
01.	Burns & Mc Donnells	02
02.	Arcon	07
03.	Bitkraft	02
04.	Growupp	02
05.	Mastek	01
06.	Zycus	03

07.	Miko.Ai	01
08.	Nucsoft	05
09.	TSS Consultancy	02
10.	Promx	03
11.	63 Moons Technologies	01
12.	Media. net	01
13.	Jaro Education	02
14.	Sportz Interactive	08
15.	Test Yantra	02
16.	DigiPlus It	01
17.	Tanla	04
18.	Feedspot	05
19.	Winsoft	01
20.	Burns & Mcdonell (Internship)	01
21.	ExcelR	10
22.	Medtronics	01
23.	Seimens	03
24.	Lenden Club	02
25.	Hire Mi	17
26.	A-1 Fence Products	01
27.	Kent	05
28.	CMSS	03
29.	Atidan	01
30.	Ambetronics	09
31.	All Wave	10
32.	Cognitus	01
33.	Nimap Infotech	01
34.	Arrow electrical	04
35.	Hubble Hox	03
36.	YOTTA Infrastructure	01
37.	Swabhav Techlabs	02
38.	Fourth Signal	03
39.	Vision Mechatronics	01
40.	PBML-Plus Business Machines Ltd	03

41.	PlanetSpark	03
42.	ExcelR	03
43.	Green Source Pvt Ltd	02
44.	Ketsol	01
45.	Xircls	02
46.	Credence Analytics	02
47.	Waaree Energies	01
48.	Seimens	01
49.	Prama Hikvision	01
50.	Sprint Integrated Solutions Pvt Ltd	4
51.	Maxim Peripherals	1
52.	Capgemini	10
53.	Matchless Protecht	1
54.	Faceprep	2
55.	Pascali Technologies	4
56.	Agaetis Technologies	1
57.	Elmack Engineer	1
58.	Kaplinks Engineering	1
59.	Beyond Alliance	1
60.	Frotech Services	1
61.	SecuTech Automation Pvt Ltd	3
62.	Greeksoft Technologies	1
63.	Voltago	1
64.	Unidesign Jewels	2
65.	ATS: Auto Techno Solutions	1
66.	Depth Consulting Pvt Ltd	5
67.	TCS NQT	22
68.	Percipere	2
69.	G-Money	3
70.	Archstore	1
71.	Letstute	1
72.	Nivotime Pvt Ltd	1
73.	Mindstix	1
74.	The Boring Studio	1

75.	Accenture	2
76.	Tech Mahindra	1
77.	Wysetek technologies	1
78.	Digite Infotech	1
79.	V-Tech Technologies pvt Ltd	1
80.	Vinay Electrical Solutions	1
81.	Tsim Communicating Services Pvt Ltd	1
82.	Anglo-Eastern Ship Management	2
83.	Kinesis System Inc.	1
84.	Black Box	1
85.	Hitachi	1
86.	Synechron	2
87.	Consulta Tecnologies Pvt Ltd	1
88.	Netlynx Solutions	1
89.	Medha Servo Drives Pvt Ltd	1
90.	First Source Technology	2
91.	Smith & Shark India Pvt Ltd	1
92.	WattNexx	2
93.	Wistride	4
94.	HR Mantra	1
95.	Zenith engineering Corporation	1
96.	Quantasis Solutions Pvt Ltd	1
97.	Intigrety	1
98.	Franchise and job	1
99.	Verdantis Technologies	2
100.	Teachnook	1
OVER ALL		264

Note: Placements in progress

PLACEMENT REPORT FOR THE ACEDEMIC YEAR 2022-2023

Sr. No.	Name of the Company	Total Offers
01.	Mastek Ltd.	03
02.	Acty Systems	07
03.	Hexaware Technologies	23

04.	Mindstix Software Labs	08
05.	Zeus Learning	08
06.	IBM	01
07.	TCS	43
08.	TSS Consultancy	05
09.	Ugam|A Merkle Company	21
10.	Exponentia.ai (http://exponentia.ai/)	03
11.	Burns & McDonnell	10
12.	Kanini Software	01
13.	Decimal Point	02
14.	Vistaar	06
15.	ARCON Techsolutions	10
16.	Vhiron	08
17.	Jaro Education	04
18.	Newfold Digital (Endurance)	03
19.	Satva Solutions	04
20.	Tech Mahindra	13
21.	Sports Interactive	18
22.	Tata Advance System Ltd	05
23.	Unifynd	01
24.	Klutchh Gaming Pvt Ltd.	01
25.	Capgemini	32
26.	Allerin	01
27.	Lendenclub	06
28.	Swan Solution	01
29.	e-Emphasys	01
30.	Seclore	01
31.	Demand Lane	01
32.	Adenza	01
33.	63 Moons Technologies	05
34.	Code Array	03
35.	Feedspot	03
36.	Miko. Ai	01
37.	Leaping Frog Solution	02

38.	Quality Kiosk	02
39.	Plasma Engineering	01
40.	Media.Net	02
41.	Bitkraft	01
42.	Mindgate Solutions	06
43.	ICICI Prudential AMC Ltd.	02
44.	BlueStar	04
45.	BTS Digital	04
46.	Planet Sparks	06
47.	OM Technical Solution	04
48.	Learning Routes	01
49.	QODE Next	05
50.	Tanla Platforms Ltd.	02
51.	Netcore Clouds	02
52.	All Wave Av	11
OVER ALL		326

B.E PLACEMENTS REPORT 2021-22 Batch (Till Date)

S. No.	Name of the Company	Total Offers
01.	Infosys	29
02.	Zeus Learning	03
03.	TSS Consultancy	15
04.	Acty Systems Pvt Ltd	06
05.	Adrosonic	06
06.	Evosys	17
07.	Raw Engineering	04
08.	Burns & McDonnell	06
09.	Tech Mahindra	26
10.	Zycus	02
11.	TCS Ninja	39
12.	TCS Digital	04
13.	Capgemini	78
14.	Ugam Solutions	12
15.	Hexaware	16

16.	LenDenClub	05
17.	BirlaSoft	04
18.	Endurance(Newfold Digital)	04
19.	Virtusa	15
20.	KPIT	01
21.	CRM Next	04
22.	Sports Interactive	04
23.	Jaro Education	06
24.	Headstrait Software	01
25.	Wipro	98
26.	BTS	03
27.	Feedspot	02
28.	QualityKiosk	02
29.	Vistaar	02
30.	DHL Supply Chain	04
31.	Code Array Technologies	01
32.	RPG Raychem	01
33.	Zensar	05
34.	Mindcarft	05
35.	Atos	01
36.	ilink Systems	01
37.	Decimal Points	01
38.	ThirdWare Solutions	02
39.	Jio Platforms	09
40.	Fintoo	02
41.	Google	01
42.	Citus Tech	02
43.	Fable Fintech	04
44.	Upgrad	02
45.	Media.net	02
46.	Datamatics	01
47.	Reliance Jio 5G	02
48.	Atidan Technologies	01
49.	Zill Consulting	01

50.	JM Financial	02
51.	Mizuho Bank	01
52.	Beyond Alliance	01
53.	Synoptics	02
54.	Brinks	01
55.	Deloitte	02
56.	Rigbetel Labs	01
57.	Netskope	01
58.	LTI	05
59.	Jayani Technologies LLP	02
60.	Antraweb Technologies Pvt Ltd	02
61.	Lumnia Datamatics	03
62.	IBM	01
63.	Jio Haptik	01
64.	Shipmantra	01
65.	Book My show	01
66.	Edvac Inc	01
67.	Tata Power	01
68.	Accenture	01
69.	Sopra steria	01
70.	HUDL	01
71.	Redington	01
72.	Robonik India Pvt Ltd	01
73.	Barley Beauty cosmetics	01
74.	Samespace pvt ltd	01
75.	3 DI System Solutions	01
76.	Researchwire	01
77.	Accolite	01
78.	Atos Syntel	02
79.	Fynd (Shopsen se Retail technologies)	01
80.	Crisil	04
81.	Air Bus	01
82.	Indigital technologies	01
OVER ALL		510

BRANCHWISE PLACEMENTS REPORT 2021-22

BRANCH	Total Offers
CS	164
IT	189
EXTC	108
ELEX	25
ELEC	24
TOTAL	510

B.E PLACEMENTS REPORT 2020-2021 Batch (Till Date)

Note: Placements in progress

S. No.	Name of the Company	Total Offers
01.	Capgemini	55
02.	Raw Engineering	03
03.	TCS Codevita Ninja	07
04.	Chegg India Pvt. Ltd.	05
05.	Endurance International Group	02
06.	Burns n McDonnell	01
07.	Quality Kiosk	04
08.	Reliance Jio	07
09.	TCS Ninja	46
10.	Infosys	07
11.	Zeus Learning	03
12.	Jaro Education	02
13.	C2LBIZ	05
14.	Fintech Infosystems Pvt Ltd	01
15.	Wipro	02
16.	Acty Systems Pvt Ltd	01
17.	Accenture	33
18.	Feedspot	01
19.	Rudder Analytics	01
20.	Media.net	01
21.	Cogno AI	01
22.	QAD	02

23.	Kudosware	01
24.	E2Open(Zyme)	01
25.	ICICI Securities	01
26.	Mitr Learning	01
27.	Teleperformance	01
28.	Design & Code	02
29.	Magneto IT Solutions Pvt Ltd	01
30.	Atos Syntel	04
31.	Airbus India	02
32.	Dexian Consulting	01
33.	Cyber FI	01
34.	Instinct Innovation Pvt Ltd	02
35.	White Crow Research Pvt Ltd	01
36.	Censius AI	01
37.	Urban Tribe	01
38.	Egnyte	01
39.	Hiker Wolf	01
40.	University of Delhi(Faculty)	01
41.	Klaar	01
42.	Metamug	01
43.	GoComet	01
44.	Petalpulse	01
45.	EPAM Systems	01
46.	TEDxACE	01
47.	LTI	03
48.	Virtual Blue Limited	01
49.	Freelance	01
50.	TCN	01
51.	Pie Infocomm Pvt Ltd	01
52.	TechoPort Computers	01
53.	Vistaar Technologies	01
54.	KrypMedia	01
55.	LearningIT	01
56.	Passion Ka Bhoot	01

57.	Enquero	01
58.	HIBSKIT	01
59.	SolidBeta Pvt Ltd	01
60.	Out of Box	01
61.	Pentashark	03
62.	Robocon ACE	01
63.	Jatayu Unmanned Systems	01
64.	TEDxACE	01
65.	EdTech Company	01
66.	Dream Team Digital creatives	01
67.	Ugam Solutions	03
68.	Finacus Solutions Pvt Ltd	02
69.	Cognizant	07
70.	TATA Elxsi Limited	01
71.	PT Ecological Pvt Ltd	01
72.	Decimal Point Pvt Ltd	01
73.	CRM Next	02
74.	Knowledge Excel Pvt Ltd	01
75.	GoldMedal Electrical Pvt Ltd	01
76.	ACG	07
77.	KPIT	01
78.	Tutedude	01
79.	Shri Adinath Merchant & Exports Ltd	01
80.	Progessive Infovision Pvt Ltd	01
81.	Fable Fintech	04
82.	GEP WorldWide	01
83.	Capita	01
84.	Denstu Aegis Network	01
85.	Synoptics Technologies	01
86.	Tech Truffle	01
87.	Mind tree	01
88.	Awesomechaps IT studio	01
89.	IT Trainer at compufield	01
90.	Sectona	01

91.	Fhere solutions	01
92.	Trenex Energy pvt ltd	01
93.	Clever tap	01
94.	Resolute AI software	01
95.	Flextrade	01
96.	DataLogix	01
97.	EasyMazdoor	01
98.	Citius Tech	01
99.	Deloitte	01
100.	DHL	01
101.	Fugetron Corporation	01
102.	HushTech AI	01
103.	StrataHive	01
104.	Beyond Automation	01
105.	Marine Electricals Ltd	01
106.	Indits Projects & ConsultingEngineers Pvt ltd	01
107.	One97 Communications Pvt Ltd	01
108.	Avotrix	01
109.	Codifyd	01
110.	Jardens Capability Devlopers Pvt Ltd	01
111.	HUDL	01
112.	Zycus	01
113.	Wipro	01
114.	DC Infotech & Communiction Ltd	01
115.	BloombergQuint	01
116.	Kyoritsu Electrical India Pvt Ltd	01
117.	Flipspaces	01
118.	EC Council	01
119.	Improvians Engineering Services	01
120.	Susangat Electronics	01
121.	Nepa	01
122.	Ambertronics Engineers Pvt Ltd	01
123.	Amnex InfoTechnologies	01
124.	DigiflixTV	01

125.	FreeUP Ltd	01
126.	The Lighthouse Project India	01
127.	Amazon Transportation Pvt Ltd	01
128.	Ribbion Communications	01
129.	BlueChip FX	01
130.	G2G Technosoft	01
131.	BOLT IOT	01
132.	CricWizz	01
133.	KrypTon Retail	01
134.	Flex	01
135.	Arrka	01
136.	Marked Ltd	01
137.	eClerx	02
138.	Lumina datamatics	01
139.	KPMG	01
140.	Control Case	01
141.	LifeStack Technologies	01
142.	Backslash model united nation	01
143.	Feedspot	01
144.	Servosys Solutions	01
145.	Jio Platforms	02
146.	Azilen Technologies	01
147.	Prama Hikvision Pvt Ltd	01
148.	NSEIT	01
149.	Digihealth	01
150.	Xoriant Ltd	01
151.	SherTech Information Services Inc	01
152.	Amphenol India	01
153.	Saint-Gobain	02
154.	Anand Techno Creations	01
155.	Sports Interactive	01
156.	Tuft Place (O)	01
157.	Vpledge	01
158.	DATACOM PRODUCTS (INDIA) PRIVATE LIMITED	01

159.	Lakshya Institute	01
160.	Sopra Steria	01
161.	Scanomi	01
162.	Netcracker Technologies	01
163.	Netcore Cloud	01
164.	Raise Financial Services	01
165.	Signzy	01
166.	Signzy	01
167.	Greeksoft Technologies Pvt. Ltd.	01
168.	WebSatva Technologies	01
169.	Randstad	01
OVER ALL		369

BRANCHWISE PLACEMENTS REPORT 2020-21

BRANCH	Total Offers
CS	119
IT	106
EXTC	83
ELEX	44
ELEC	17
TOTAL	369

B.E PLACEMENTS REPORT 2019-2020 Batch (Till Date)

Note: Placements in progress

S. No.	Name of the Company	Total Offers
1.	Accenture	102
2.	Amazon	03
3.	Vistex	01
4.	Infosys	07
5.	DSM Infocom	01
6.	TCS-Ninja	46
7.	TCS-Digital	02
8.	Capgemini	22
9.	NSE IT	07

10.	Burns & McDonnell	04
11.	Seclore Technology	01
12.	Reliance Jio	02
13.	Jaro Education	01
14.	Zycus	01
15.	Zeus Learning	01
16.	Media.Net	11
17.	Infosys	09
18.	Endurance Groups	02
19.	Sportz Interactive	03
20.	CloudFronts	01
21.	Simeio Solutions	02
22.	Servosys	02
23.	Atos Syntel	02
24.	NucSoft	03
25.	Square Yard	03
26.	TSS	01
27.	Bista Solutions	03
28.	Vikran	04
29.	Sensys India	05
30.	SilverLink	01
31.	Wipro	01
32.	Robokart	05
33.	E&Y (in S.R. Batliboi & Co. LLP)	02
34.	Chegg India Pvt. Ltd.	04
35.	IEEC Power Electronics pvt ltd	01
36.	Ugam Solutions	03
37.	Pelician	01
38.	Agama Services Pvt Ltd	01
39.	Etech Global Services	01
40.	Scad Technologies	01
41.	Finulent Solutions Pvt Ltd	01
42.	Superfan Studio	01
43.	Anridhudda Telemetry Systems	03

44.	XpreessBees	01
45.	Quality Kiosk	01
46.	Saint Gobain INDEC International IT Delivery Centre	01
47.	Silicon Interfaces	01
48.	CyberNx	01
49.	DXC Technology	02
50.	Kesari Tour	01
51.	Ifortis	01
52.	Kapture CRM (Philippines)-BDM	01
53.	BYJUS	01
54.	OutofBox	01
55.	Milion Pixel	01
56.	Matix Fertiliser & Chemicals	01
57.	Improvians Engineering Services	01
58.	CDSpace Robotics Pvt Ltd, Bangalore	01
59.	Acevin Solutions	01
60.	Stech Laboratory	01
61.	Miko	01
62.	Touchzing Media Pvt. Ltd.	01
63.	Ajackus	01
64.	eClinicalWorks	01
65.	Yotta Infrastructure Solutions	01
66.	Multichem Speclialities Pvt Ltd	01
67.	UpWork (Freelance)	01
68.	You Better Me	01
69.	Achme Water Solution Pvt Ltd	01
70.	A.R.Marketing & Services	01
71.	iQuanta Edu Services	01
72.	NVIDIA	01
73.	Radix Electrosystems Pvt Ltd	01
74.	BEST	01
75.	Brand Protocol	01
76.	CommonWealth Labs	01
77.	Rajesh Power Services Pvt Ltd	01

78.	TVM S&T Systems Pvt Ltd	01
79.	Cameraah (TechStars)	01
80.	SirpiData Science	01
81.	Sectona	01
82.	TechSkills	01
83.	Bank of America	01
84.	Hudl	01
85.	Fresher Jobs	01
86.	DesiCode Infosolutions	01
87.	K21 Academy	01
88.	ABCOM Education	01
89.	Enfuse Solutions	01
90.	Shortcastle Technologies	01
91.	Textronics Design Systems Pvt Ltd	01
92.	ACG Worldwide	01
93.	Mem-Ox Technologies Pvt Ltd	01
OVER ALL		330

BRANCHWISE PLACEMENTS REPORT 2019-20

BRANCH	Total Offers
CS	120
IT	89
EXTC	39
ELEX	48
ELEC	34
TOTAL	330

B.E PLACEMENTS REPORT 2018-2019 Batch

S. No.	Name of the Company	Total Offers
1.	Accenture	87
2.	TCS	15
3.	NSEIT	03
4.	L&T	07
5.	Sankey Solutions	01

6.	Indian Railways	01
7.	Burns & McDonnell	04
8.	Endurance International Group	05
9.	Tata Communication	03
10.	Hexaware Technologies	02
11.	Extramarks Pvt ltd	04
12.	Cloudfronts Technology	02
13.	Zeus Learning	02
14.	Imarticus Learning Pvt ltd	01
15.	Wipro	05
16.	Vistaar systems India pvt ltd	01
17.	India Mart	01
18.	Reliance Retail	01
19.	Quinnox	01
20.	Media.net	06
21.	Bizotics	01
22.	A One Salasar Pvt Ltd	01
23.	Cognizant Technology Solutions	05
24.	GTen Consultancy Digital Pvt Ltd	07
25.	Ugam Solutions	01
26.	Robokart.com	11
27.	Sutherland	01
28.	ACS India	01
29.	Accion Labs	01
30.	Atos Syntel	04
31.	Tranzact	01
32.	Brandscapes Worldwide	06
33.	TSS Consultancy pvt ltd	02
34.	Infinite computing systems	01
35.	Seclore Technolgy	01
36.	Capgemini	03
37.	Savita Oil Technology pvt ltd	01
38.	Micropoint Computers Pvt Ltd.	04
39.	RPS Group	01

40.	YOCKET	01
41.	HDFC	01
42.	Light X pvt ltd	01
43.	Hind Rectifiers ltd	01
44.	Vikran Engineering & Exim Pvt. Ltd	04
45.	Aniruddha Telemetry systems	01
46.	Ecom Infotech I Ltd	01
47.	Pyamid E & C	02
48.	Expenzing	02
49.	Ametronics pvt ltd	01
50.	HUDL	70
51.	Quinnox	01
52.	Experience Commerce	01
53.	QAD	02
54.	Tata Motors	01
55.	Torrent Power ltd	03
56.	Kirti Singh Lighting Desings	03
57.	Gudhi Engineering	01
58.	Cactus	04
59.	BridgeLabs	01
60.	Celibi Aviation	01
61.	Hazel Lightining	04
62.	Vijeet Developers	01
OVER ALL		313

BRANCHWISE PLACEMENTS REPORT 2018-19

BRANCH	Total Offers
CS	97
IT	90
EXTC	65
ELEX	33
ELEC	26
TOTAL	313

B.E PLACEMENTS REPORT 2017-2018 Batch (Till Date)

S. No.	Name of the Company	Total Offers
1.	Accenture	103
2.	Zeus Learning	05
3.	NSEIT	04
4.	Zycus	05
5.	Bitwise	01
6.	Matrix	01
7.	Accion Labs	03
8.	Adrosonic	01
9.	Burns & Mcdonnell	01
10.	Neosoft Technologies	02
11.	Tata Communication	08
12.	KPIT	01
13.	Media.net	02
14.	Robokart.com	15
15.	Acty Systems	03
16.	Face Academy	02
17.	Amazon	02
18.	Sportz Interactive	02
19.	Byju’s	02
20.	Quinnox	01
21.	Vistaar Technologies	04
22.	Inspeero Technologies	01
23.	Micropoint computers pvt ltd	02
24.	Sportstec (HUDL)	99
25.	Imprerix	01
26.	Atulya ventures Ptv.ltd.	01
27.	we design code	01
28.	Brandscape Worldwide	06
29.	CSS India	01
30.	Solutions India Pvt ltd	02
31.	Lite Technologies	01
32.	Aurus Inc	01

33.	Capgemini	07
34.	Performics Convonix	04
35.	Infosys	10
36.	Syntel	02
37.	The Glitch	01
38.	Onida	01
39.	Etouch Virtusa	01
40.	AGS Transact technology	02
41.	Suntuity	01
41.	Sankey Solutions	01
41.	NSDL e-Governance Infrastructure Limited	01
41.	Toshiba Mitsubishi	02
42.	Trigyn	01
OVER ALL		318

BRANCHWISE PLACEMENTS REPORT 2017-18

BRANCH	Total Offers
CS	90
IT	93
EXTC	72
ELEX	31
ELEC	32
TOTAL	318

B.E PLACEMENTS REPORT 2016-2017 Batch

S. No.	Name of the Company	Total Offers
1.	Infosys	26
2.	Tech Mahindra	51
3.	Accenture	146
4.	L & T Infotech	19
5.	Vistaar	01
6.	Accion Labs	03
7.	Genex corporate services pvt ltd	01
8.	Tech Mahindra Business services ltd	01

9.	IBM	01
10.	Imarticus Learning	01
11.	Nucsoft ltd	01
12.	Neosoft Technologies	01
13.	Sutherland	07
14.	Credence Analytics	01
15.	Burns & Mcdonnell	01
16.	Rave Technologies	01
17.	Tikona Digital Networks	01
18.	Redbull Induia pvt ltd	01
19.	Eduisfun	01
20.	Gandhi Automations Pvt Ltd	01
21.	Sportstec India pvt ltd	43
22.	Affinity	02
23.	AET Flexible Space Pvt Ltd	01
24.	GPX India Pvt Ltd	01
TOTAL PLACED		313

BRANCHWISE PLACEMENTS REPORT 2016-17

BRANCH	Total Offers
CS	87
IT	91
EXTC	77
ELEX	31
ELEC	27
TOTAL	313

B.E FINAL PLACEMENTS REPORT 2015-2016 Batch

S. No.	Name of the Company	Total Offers
1	Infosys	57
2	Accenture	52
3	Tech Mahindra	38
4	Igate	62
5	Zycus	01

6	Quinnox	02
7	Merilent Inc.	04
8	Viteos Capital	03
9	Sutherland Global Services	03
10	Infinite Computing Systems	07
11	Zeus Learning	02
12	Hind Rectifiers	02
13	Rave Technologies	03
14	Asian Heart Institute	03
15	Polaris Consulting and Services Ltd	01
16	OSP Labs	04
17	Tata Consultancy Services Ltd	03
18	Ark Technosolutions	11
19	Neosoft Technologies	02
20	Bitwise	01
21	MT Educare	02
22	Magnamious Systems Ltd	02
23	Alpha Plus Technologies	03
24	Unicom Infotel Pvt Ltd	07
25	Supersonics Pvt Ltd	01
26	Dish TV	01
27	Accion Labs	03
28	Infrasoft technologies	01
29	AG Technologies	01
30	Bista solutions	01
31	Canon India Infrasofttech Ltd	03
32	Tikona	16
33	Compaxed	01
34	Microworld / Escan	01
35	Pagal guy	01
36	Sonodyne	01
37	Konstelec Engineers Pvt Ltd	01
38	In-solutions global pvt ltd	04
39	CSC	02

40	Solutions India systems pvt ltd	01
41	Syntel	07
42	Sales Pro Business Solutions Pvt Ltd	01
TOTAL PLACED		322

BRANCHWISE PLACEMENTS REPORT 2015-16

BRANCH	Total Offers
CS	94
IT	84
EXTC	76
ELEX	31
ELEC	37
TOTAL	322

B.E FINAL PLACEMENTS REPORT 2014-2015 Batch

S. No.	Name of the Company	Total Offers
1	Infosys	102
2	Igate	36
3	L & T Infotech	21
4	Tech Mahindra	35
5	Persistent Systems	01
6	Mindcraft	12
7	Quinnox	01
8	Mphasis	02
9	Infinite Computing Systems	02
10	Allerin Technologies	01
11	Neebel Technologies	01
12	Vistaar	01
13	Bista Solutions	03
14	ROOP TELSONIC ULTRASONIX LTD	01
15	Polaris Consultancy Services	01
16	Zarca Interactive	03
17	ARK Technosolutions	13
18	Amdocs	01

19	IMS Learning Resources Pvt. Ltd	01
20	Praxis Technologies Ltd	11
21	Viteos Capital Market Services Ltd	01
22	Credence Analytics	07
23	Infonius Solutions	01
24	IGNITED MINDS LUMINARIES	02
25	Magnamious Systems Pvt Ltd	04
26	Thirdware Global Services	03
27	Financial Software and Systems	02
28	ADM Pvt Ltd	01
29	Concerto Software & Systems Pvt Ltd	01
30	Gray Matrix Solutions Pvt Ltd	02
31	Exa India	03
32	Syntel	06
33	Cirrius technology	01
34	Route SMS	02
35	Reliance Gio	06
36	HDFC	02
37	Netpro Infotech Services	01
38	Unicom Infotel Pvt. Ltd.	01
39	GM Modular	01
40	Microworld technologies	01
41	Synoptics	02
42	AG Technologies	01
TOTAL PLACED		300

BRANCHWISE PLACEMENTS REPORT 2014-15

BRANCH	Total Offers
CS	99
IT	91
EXTC	72
ELEX	32
TOTAL	300

B.E FINAL PLACEMENTS REPORT 2013-2014 Batch

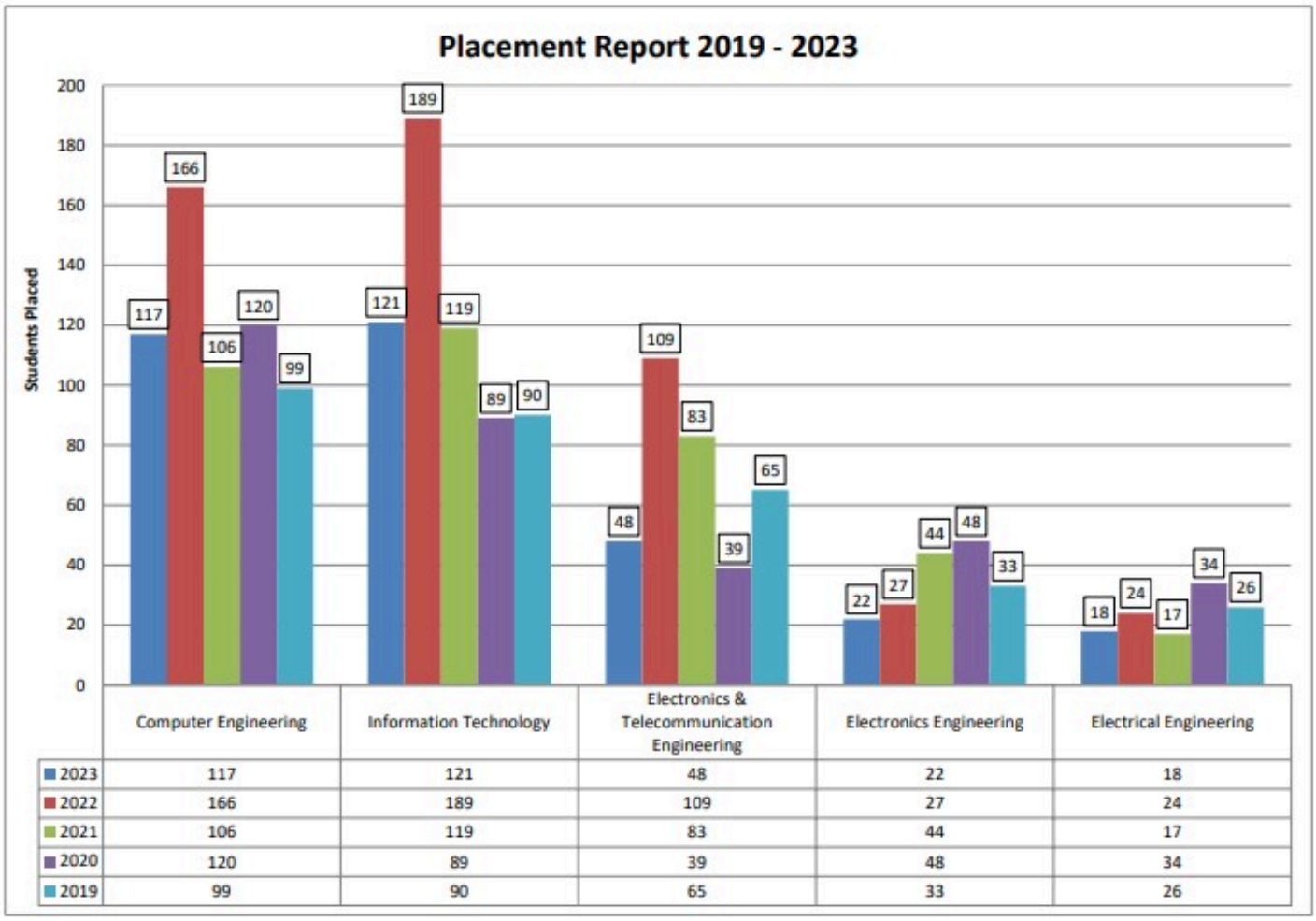
S. No.	Name of the Company	Total Placed
1	Infosys	38
2	Spectrum	49
3	Bewakoof.com	07
4	Zycus Infotech	04
5	Tech Mahindra	40
6	Quinnox	03
7	RAVE Technologies	2
8	MindCraft Software Pvt. Ltd.	13
9	Tata Consultancy Services Ltd	23
10	Credence Analytics	06
11	Crisil	03
12	Bista Solutions	07
13	ARK Technosolutions	08
14	Alpha Plus Technologies	04
15	Kiprosh	01
16	Webonise	01
17	Blobcity	01
18	Pykih	02
19	Zeus Learning	02
20	EXA India	04
21	Zarca Interactive	04
22	Team Computers	02
23	Route SMS	03
24	Atos Global	01
25	Vistex	02
26	Syntel	17
27	L & T Infotech	03
28	Reliance Gio Infocomm	05
29	Thirdware Global Services	04
30	Anlage HRO Services	01
31	Praxis Interactive Service	09
32	Neosoft Technologies	02

33	KPIT	04
34	Hexaware	03
35	Tinyowl	03
36	Financial Technologies	01
37	Datamatics	02
38	XL Dynamics	01
39	Netpro Infotech	01
40	India Infoline	01
TOTAL PLACED		287

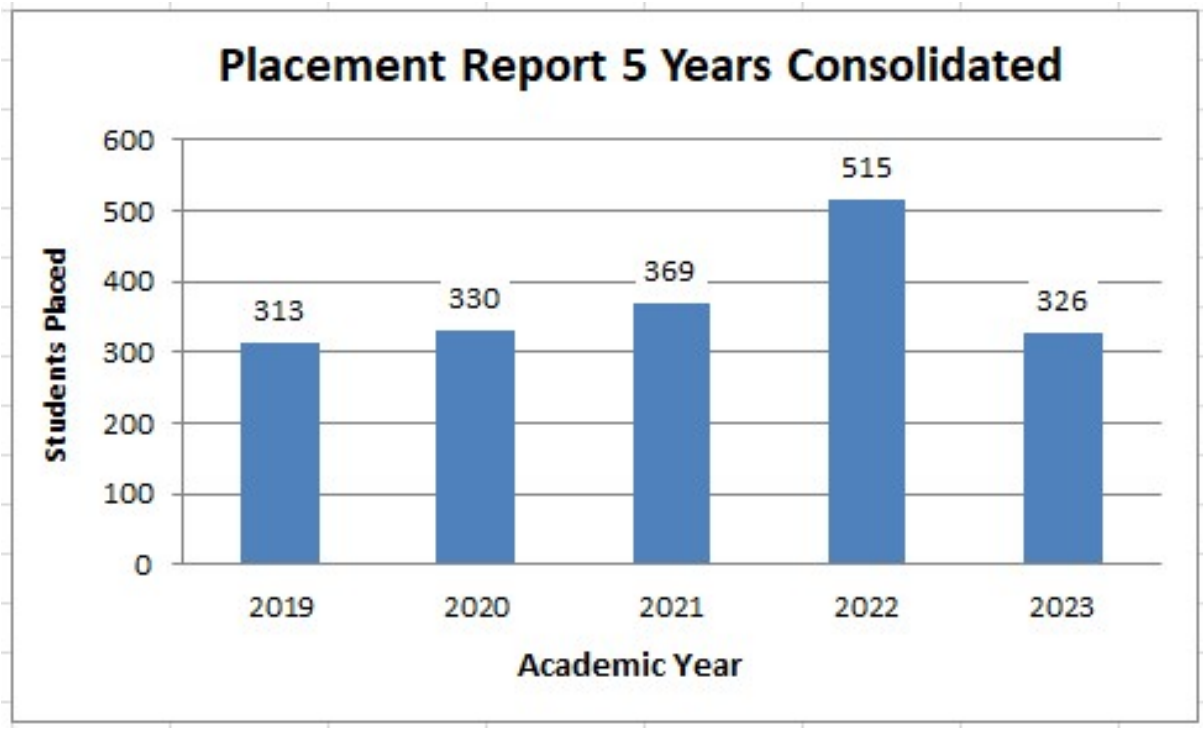
BRANCHWISE PLACEMENTS REPORT 2013-14

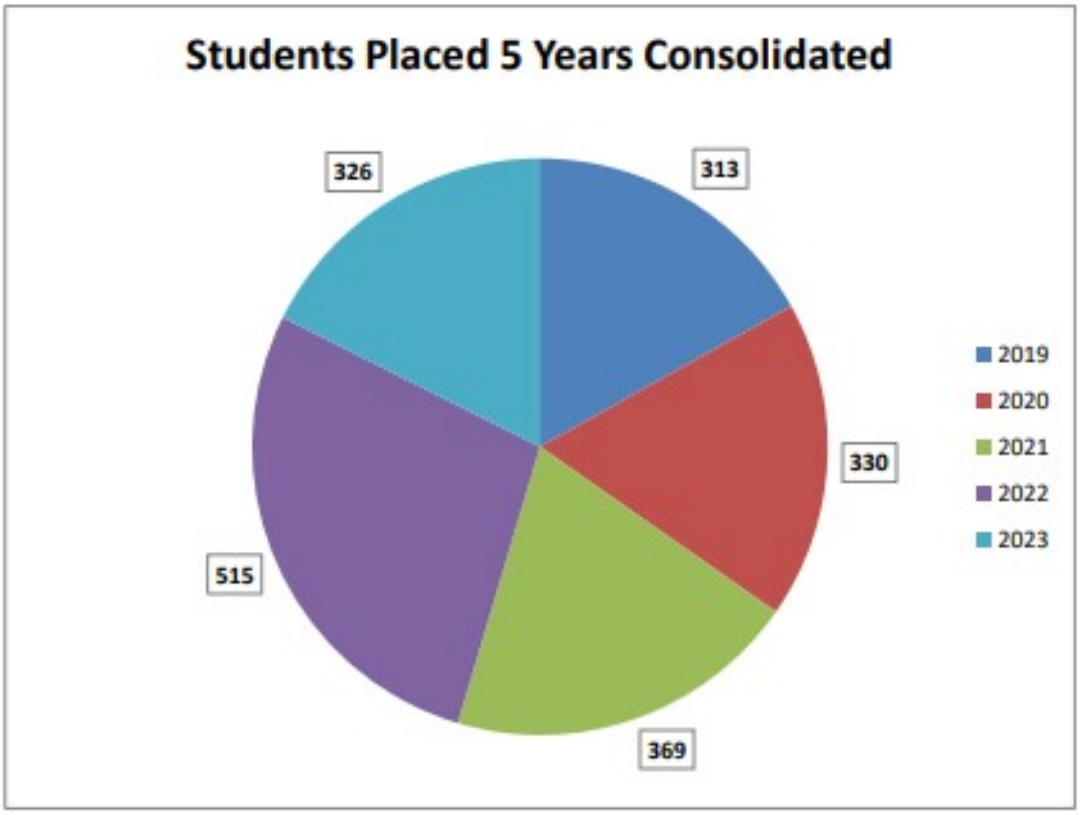
BRANCH	Total Offers
CS	87
IT	88
EXTC	71
ELEX	41
TOTAL	287

PROMINENT RECRUITERS AT ATHARVA COLLEGE OF ENGINEERING (https://www.atharvacoe.ac.in/our-prominent-r



	Computer Engineering	Information Technology	Electronics & Telecommunication Engineering	Electronics Engineering	Electrical Engineering
2023	117	121	48	22	18
2022	166	189	109	27	24
2021	106	119	83	44	17
2020	120	89	39	48	34
2019	99	90	65	33	26





Reach out to us at:

Training and Placement Office: +91-22-40294949

Sr. No.	Name	Designation	Email
1.	**Placement Department**	Head Training and Placement	placements.ace@atharvacoe.ac.in (placements.ace@atharvacoe.ac.in)

AC: 29/06/2021

Item No: 6.15

UNIVERSITY OF MUMBAI

Bachelor of Engineering

in

Computer Engineering

Second Year with Effect from AY 2020-21

Third Year with Effect from AY 2021-22

Final Year with Effect from AY 2022-23

(REV- 2019 'C' Scheme) from Academic Year 2019 – 20

Under

FACULTY OF SCIENCE & TECHNOLOGY

(As per AICTE guidelines with effect from the academic year 2019–2020)

AC: 29/06/2021

Item No: 6.15

UNIVERSITY OF MUMBAI

Sr. No.	Heading	Particulars
1	Title of the Course	**Third Year Engineering (Computer Engineering)**
2	Eligibility for Admission	**After Passing Second Year Engineering as per the Ordinance 0.6243**
3	Passing Marks	**40%**
4	Ordinances / Regulations (if any)	**Ordinance 0.6243**
5	No. of Years / Semesters	**8 semesters**
6	Level	~~P.G.~~ / **U.G.**/ ~~Diploma / Certificate~~ (Strike out which is not applicable)
7	Pattern	~~Yearly~~ / **Semester** (Strike out which is not applicable)
8	Status	~~**New**~~ / Revised (Strike out which is not applicable)
9	To be implemented from Academic Year	**With effect from Academic Year: 2021-2022**

Dr. S. K. Ukarande
Associate Dean
Faculty of Science and Technology
University of Mumbai

Dr Anuradha Muzumdar
Dean
Faculty of Science and Technology
University of Mumbai

Preamble

To meet the challenge of ensuring excellence in engineering education, the issue of quality needs to be addressed, debated and taken forward in a systematic manner. Accreditation is the principal means of quality assurance in higher education. The major emphasis of accreditation process is to measure the outcomes of the program that is being accredited. In line with this Faculty of Science and Technology (in particular Engineering) of University of Mumbai has taken a lead in incorporating philosophy of outcome based education in the process of curriculum development.

Faculty resolved that course objectives and course outcomes are to be clearly defined for each course, so that all faculty members in affiliated institutes understand the depth and approach of course to be taught, which will enhance learner's learning process. Choice based Credit and grading system enables a much-required shift in focus from teacher-centric to learner-centric education since the workload estimated is based on the investment of time in learning and not in teaching. It also focuses on continuous evaluation which will enhance the quality of education. Credit assignment for courses is based on 15 weeks teaching learning process, however content of courses is to be taught in 13 weeks and remaining 2 weeks to be utilized for revision, guest lectures, coverage of content beyond syllabus etc.

There was a concern that the earlier revised curriculum more focused on providing information and knowledge across various domains of the said program, which led to heavily loading of students in terms of direct contact hours. In this regard, faculty of science and technology resolved that to minimize the burden of contact hours, total credits of entire program will be of 170, wherein focus is not only on providing knowledge but also on building skills, attitude and self learning. Therefore in the present curriculum skill based laboratories and mini projects are made mandatory across all disciplines of engineering in second and third year of programs, which will definitely facilitate self learning of students. The overall credits and approach of curriculum proposed in the present revision is in line with AICTE model curriculum.

The present curriculum will be implemented for Second Year of Engineering from the academic year 2021-22. Subsequently this will be carried forward for Third Year and Final Year Engineering in the academic years 2022-23, 2023-24, respectively.

Dr. S. K. Ukarande
Associate Dean
Faculty of Science and Technology
University of Mumbai

Dr Anuradha Muzumdar
Dean
Faculty of Science and Technology
University of Mumbai

ncorporation and Implementation of Online Contents from NPTEL/ Swayam Platform

The curriculum revision is mainly focused on knowledge component, skill based activities and project based activities. Self learning opportunities are provided to learners. In the revision process this time in particular Revised syllabus of 'C' scheme wherever possible additional resource links of platforms such as NPTEL, Swayam are appropriately provided. In an earlier revision of curriculum in the year 2012 and 2016 in Revised scheme 'A' and 'B' respectively, efforts were made to use online contents more appropriately as additional learning materials to enhance learning of students.

In the current revision based on the recommendation of AICTE model curriculum overall credits are reduced to 171, to provide opportunity of self learning to learner. Learners are now getting sufficient time for self learning either through online courses or additional projects for enhancing their knowledge and skill sets.

The Principals/ HoD's/ Faculties of all the institute are required to motivate and encourage learners to use additional online resources available on platforms such as NPTEL/ Swayam. Learners can be advised to take up online courses, on successful completion they are required to submit certification for the same. This will definitely help learners to facilitate their enhanced learning based on their interest.

Dr. S. K. Ukarande
Associate Dean
Faculty of Science and Technology
University of Mumbai

Dr Anuradha Muzumdar
Dean
Faculty of Science and Technology
University of Mumbai

Preface by Board of Studies in Computer Engineering

Dear Students and Teachers, we, the members of Board of Studies Computer Engineering, are very happy to present Third Year Computer Engineering syllabus effective from the Academic Year 2021-22 (REV-2019'C' Scheme). We are sure you will find this syllabus interesting, challenging, fulfill certain needs and expectations.

Computer Engineering is one of the most sought-after courses amongst engineering students. The syllabus needs revision in terms of preparing the student for the professional scenario relevant and suitable to cater the needs of industry in present day context. The syllabus focuses on providing a sound theoretical background as well as good practical exposure to students in the relevant areas. It is intended to provide a modern, industry-oriented education in Computer Engineering. It aims at producing trained professionals who can successfully acquainted with the demands of the industry worldwide. They obtain skills and experience in up-to-date the knowledge to analysis, design, implementation, validation, and documentation of computer software and systems.

The revised syllabus is finalized through a brain storming session attended by Heads of Departments or senior faculty from the Department of Computer Engineering of the affiliated Institutes of the Mumbai University. The syllabus falls in line with the objectives of affiliating University, AICTE, UGC, and various accreditation agencies by keeping an eye on the technological developments, innovations, and industry requirements.

The salient features of the revised syllabus are:

1. Reduction in credits to 170 is implemented to ensure that students have more time for extracurricular activities, innovations, and research.
2. The department Optional Courses will provide the relevant specialization within the branch to a student.
3. Introduction of Skill Based Lab and Mini Project to showcase their talent by doing innovative projects that strengthen their profile and increases the chance of employability.
4. Students are encouraged to take up part of course through MOOCs platform SWAYAM

We would like to place on record our gratefulness to the faculty, students, industry experts and stakeholders for having helped us in the formulation of this syllabus.

Board of Studies in Computer Engineering

Prof. Sunil Bhirud	: Chairman
Prof. Sunita Patil	: Member
Prof. Leena Raga	: Member
Prof. Subhash Shinde	: Member
Prof. Meera Narvekar	: Member
Prof. Suprtim Biswas	: Member
Prof. Sudhir Sawarkar	: Member
Prof. Dayanand Ingle	: Member
Prof. Satish Ket	: Member

Program Structure for Third Year Computer Engineering
UNIVERSITY OF MUMBAI (With Effect from 2021-2022)

Semester VI

Course Code	Course Name	Teaching Scheme (Contact Hours)		Credits Assigned		
		Theory	Pract. Tut.	Theory	Pract.	Total
CSC601	System Programming & Compiler Construction	3	--	3	--	3
CSC602	Cryptography & System Security	3	--	3		3
CSC603	Mobile Computing	3	--	3	--	3
CSC604	Artificial Intelligence	3	--	3	--	3
CSDLO601x	Department Level Optional Course -2	3	--	3	--	3
CSL601	System Programming & Compiler Construction Lab	--	2	--	1	1
CSL602	Cryptography & System Security Lab	--	2	--	1	1
CSL603	Mobile Computing Lab	--	2	--	1	1
CSL604	Artificial Intelligence Lab	--	2	--	1	1
CSL605	Skill base Lab Course: Cloud Computing	--	4	--	2	2
CSM601	Mini Project Lab: 2B	--	4[$]	--	2	2
Total		**15**	**16**	**15**	**08**	**23**

Course Code	Course Name	Examination Scheme							
		Theory					Term Work	Pract. &oral	Total
		Internal Assessment			End Sem Exam	Exam. Duration (in Hrs)			
		Test 1	Test 2	Avg					
CSC601	System Programming & Compiler Construction	20	20	20	80	3	--	--	100
CSC602	Cryptography & System Security	20	20	20	80	3	--	--	100
CSC603	Mobile Computing	20	20	20	80	3	--	--	100
CSC604	Artificial Intelligence	20	20	20	80	3	--	--	100
CSDLO601x	Department Level Optional Course -2	20	20	20	80	3	--	--	100
CSL601	System Programming & Compiler Construction Lab	--	--	--	--	--	25	25	50
CSL602	Cryptography & System Security Lab	--	--	--	--	--	25	--	25
CSL603	Mobile Computing Lab	--	--	--	--	--	25	-	25
CSL604	Artificial Intelligence Lab						25	25	50
CSL605	Skill base Lab Course: Cloud Computing	--	--	--	--	--	50	25	75
CSM601	Mini Project :2B	--	--	--	--	--	25	25	50
Total		**--**	**--**	**100**	**400**	**--**	**175**	**100**	**775**

Program Structure for Computer Engineering

UNIVERSITY OF MUMBAI (With Effect from 2021-2022)

Department Optional Courses

Department Level Optional Courses	Semester	Code & Course
Department Level Optional Course -2	VI	CSDLO6011: Internet of Things CSDLO6012: Digital Signal & Image Processing CSDLO6013: Quantitative Analysis

Course Code:	Course Title	Credit
CSC601	System Programming and Compiler Construction	3

Prerequisite: Theoretical computer science, Operating system. Computer Organization and Architecture .	
Course Objectives:	
1	To understand the role and functionality of various system programs over application programs.
2	To understand basic concepts, structure and design of assemblers, macro processors, linkers and loaders.
3	To understand the basic principles of compiler design, its various constituent parts, algorithms and data structures required to be used in the compiler.
4	To understand the need to follow the syntax in writing an application program and to learn how the analysis phase of compiler is designed to understand the programmer ‘s requirements without ambiguity
5	To synthesize the analysis phase outcomes to produce the object code that is efficient in terms of space and execution time
Course Outcomes: On successful completion of course, learner will be able to	
1	Identify the relevance of different system programs.
2	Explain various data structures used for assembler and microprocessor design.
3	Distinguish between different loaders and linkers and their contribution in developing efficient user applications.
4	Understand fundamentals of compiler design and identify the relationships among different phases of the compiler.

Module		Content	Hrs
1		**Introduction to System Software**	**2**
	1.1	Concept of System Software, Goals of system software, system program and system programming, Introduction to various system programs such as Assembler, Macro processor, Loader, Linker, Compiler, Interpreter, Device Drivers, Operating system, Editors, Debuggers.	
2		**Assemblers**	7
	2.1	Elements of Assembly Language programming, Assembly scheme, pass structure of assembler, Assembler Design: Two pass assembler Design and single pass Assembler Design for X86 processor, data structures used.	
3		**Macros and Macro Processor**	6
	3.1	Introduction, Macro definition and call, Features of Macro facility: Simple, parameterized, conditional and nested. Design of Two pass macro processor, data structures used.	
4		**Loaders and Linkers**	**6**
	4.1	Introduction, functions of loaders, Relocation and Linking concept, Different loading schemes: Relocating loader, Direct Linking Loader, Dynamic linking and loading.	
5		**Compilers: Analysis Phase**	**10**
	5.1	Introduction to compilers, Phases of compilers: **Lexical Analysis**- Role of Finite State Automata in Lexical Analysis, Design of Lexical analyzer, data structures used.	

		Syntax Analysis- Role of Context Free Grammar in Syntax analysis, Types of Parsers: Top down parser- LL(1), Bottom up parser- SR Parser, Operator precedence parser, SLR. **Semantic Analysis**, Syntax directed definitions.	
6		**Compilers: Synthesis phase**	**8**
	6.1	**Intermediate Code Generation**: Types of Intermediate codes: Syntax tree, Postfix notation, three address codes: Triples and Quadruples, indirect triple. **Code Optimization**: Need and sources of optimization, Code optimization techniques: Machine Dependent and Machine Independent. **Code Generation:** Issues in the design of code generator, code generation algorithm. Basic block and flow graph.	

Textbooks:	
1	D. M Dhamdhere: *Systems programming and Operating Systems*, Tata McGraw Hill, Revised Second Edition
2	A. V. Aho, R. Shethi, Monica Lam, J.D. Ulman: *Compilers Principles, Techniques and Tools*, Pearson Education, Second Edition.
3	J. J. Donovan: *Systems Programming* Tata McGraw Hill, Edition 1991
References:	
1	John R. Levine, Tony Mason & Doug Brown, *Lex & YACC*, O 'Reilly publication, second Edition
2	D, M .Dhamdhere ,*Compiler construction* 2e, Macmillan publication, second edition .
3	Kenneth C. Louden ,*Compiler construction: principles and practices*, Cengage Learning
4	Leland L. Beck, *System software: An introduction to system programming*, Pearson publication, Third Edition
Useful Links for E-resources:	
1	http://www.nptelvideos.in/2012/11/compiler-design.html
2	https://www.coursera.org/lecture/nand2tetris2/unit-4-1-syntax-analysis-5pC2Z

Assessment:	
Internal Assessment:	
Assessment consists of two class tests of 20 marks each. The first -class test is to be conducted when approx. 40% syllabus is completed and the second-class test when an additional 40% syllabus is completed. Duration of each test shall be one hour.	
End Semester Theory Examination:	
1	Question paper will comprise a total of six questions.
2	All question carries equal marks
3	Questions will be mixed in nature (for example supposed Q.2 has part (a) from module 3 then part (b) will be from any module other than module 3)
4	Only Four questions need to be solved.
5	In question paper weightage of each module will be proportional to number of respective lecture hours as mentioned in the syllabus.

Course Code:	Course Title	Credit
CSC602	Cryptography & System Security	3

Prerequisite: Computer Networks	
Course Objectives:	
1	To introduce classical encryption techniques and concepts of modular arithmetic and number theory.
2	To explore the working principles and utilities of various cryptographic algorithms including secret key cryptography, hashes and message digests, and public key algorithms
3	To explore the design issues and working principles of various authentication protocols, PKI standards and various secure communication standards including Kerberos, IPsec, and SSL/TLS.
4	To develop the ability to use existing cryptographic utilities to build programs for secure communication
Course Outcomes:	
1	Understand system security goals and concepts, classical encryption techniques and acquire fundamental knowledge on the concepts of modular arithmetic and number theory
2	Understand, compare and apply different encryption and decryption techniques to solve problems related to confidentiality and authentication
3	Apply different message digest and digital signature algorithms to verify integrity and achieve authentication and design secure applications
4	Understand network security basics, analyse different attacks on networks and evaluate the performance of firewalls and security protocols like SSL, IPSec, and PGP
5	Analyse and apply system security concept to recognize malicious code

Module		Content	Hrs
1		**Introduction - Number Theory and Basic Cryptography**	**8**
	1.1	Security Goals, Attacks, Services and Mechanisms, Techniques. Modular Arithmetic: Euclidean Algorithm, Fermat‘s and Euler‘s theorem	
	1.2	Classical Encryption techniques, Symmetric cipher model, mono-alphabetic and polyalphabetic substitution techniques: Vigenere cipher, playfair cipher, Hill cipher, transposition techniques: keyed and keyless transposition ciphers	
2		**Symmetric and Asymmetric key Cryptography and key Management**	**11**
	2.1	Block cipher principles, block cipher modes of operation, DES, Double DES, Triple DES, Advanced Encryption Standard (AES), Stream Ciphers: RC4 algorithm.	
	2.2	Public key cryptography: Principles of public key cryptosystems- The RSA Cryptosystem, The knapsack cryptosystem	
	2.3	Symmetric Key Distribution: KDC, Needham-schroeder protocol. Kerberos: Kerberos Authentication protocol, Symmetric key agreement: Diffie Hellman, Public key Distribution: Digital Certificate: X.509, PKI	
3		**Cryptographic Hash Functions**	**3**
	3.1	Cryptographic hash functions, Properties of secure hash function, MD5, SHA-1, MAC, HMAC, CMAC.	
4		**Authentication Protocols & Digital Signature Schemes**	**5**
	4.1	User Authentication, Entity Authentication: Password Base, Challenge Response Based	

	4.2	Digital Signature, Attacks on Digital Signature, Digital Signature Scheme: RSA	
5		**Network Security and Applications**	**9**
	5.1	Network security basics: TCP/IP vulnerabilities (Layer wise), Network Attacks: Packet Sniffing, ARP spoofing, port scanning, IP spoofing	
	5.2	Denial of Service: DOS attacks, ICMP flood, SYN flood, UDP flood, Distributed Denial of Service	
	5.3	Internet Security Protocols: PGP, SSL, IPSEC. Network security: IDS, Firewalls	
6		**System Security**	**3**
	6.1	Buffer Overflow, malicious Programs: Worms and Viruses, SQL injection	

Textbooks:	
1	William Stallings, ***"Cryptography and Network Security, Principles and Practice"***, 6th Edition, Pearson Education, March 2013
2	Behrouz A. Ferouzan, ***"Cryptography & Network Security"***, Tata McGraw Hill
3	Behrouz A. Forouzan & Debdeep Mukhopadhyay, ***"Cryptography and Network Security"*** 3rd Edition, McGraw Hill

Referecebooks:	
1	Bruce Schneier, ***"Applied Cryptography, Protocols Algorithms and Source Code in C",*** Second Edition, Wiley.
2	Atul Kahate, ***"Cryptography and Network Security",*** Tata McGraw-Hill Education, 2003.
3	Eric Cole, ***"Network Security Bible",*** Second Edition, Wiley, 2011.

Assessment:	
Internal Assessment:	
Assessment consists of two class tests of 20 marks each. The first class test is to be conducted when approx. 40% syllabus is completed and second class test when additional 40% syllabus is completed. Duration of each test shall be one hour.	
End Semester Theory Examination:	
1	Question paper will comprise of total six questions.
2	All question carries equal marks
3	Questions will be mixed in nature (for example supposed Q.2 has part (a) from module 3 then part (b) will be from any module other than module 3)
4	Only Four question need to be solved.
5	In question paper weightage of each module will be proportional to number of respective lecture hours as mention in the syllabus.

Useful Links	
1	https://github.com/cmin764/cmiN/blob/master/FII/L3/SI/book/W.Stallings%20-%20Cryptography%20and%20Network%20Security%206th%20ed.pdf
2	https://docs.google.com/file/d/0B5F6yMKYDUbrYXE4X1ZCUHpLNnc/view

Course Code:	Course Title	Credit
CSC603	Mobile Computing	3

Prerequisite: Computer Networks	
Course Objectives:	
1	To introduce the basic concepts and principles in mobile computing. This includes major techniques involved, and networks & systems issues for the design and implementation of mobile computing systems and applications.
2	To explore both theoretical and practical issues of mobile computing.
3	To provide an opportunity for students to understand the key components and technologies involved and to gain hands-on experiences in building mobile applications.
Course Outcomes: On successful completion of course, learner will be able to	
1	To identify basic concepts and principles in computing, cellular architecture.
2	To describe the components and functioning of mobile networking.
3	To classify variety of security techniques in mobile network.
4	To apply the concepts of WLAN for local as well as remote applications.
5	To describe Long Term Evolution (LTE) architecture and its interfaces.

Module		Content	Hrs
1		**Introduction to Mobile Computing**	**4**
	1.1	Introduction to Mobile Computing, Telecommunication Generations, Cellular systems,	
	1.2	Electromagnetic Spectrum, Antenna, Signal Propagation, Signal Characteristics, Multiplexing, Spread Spectrum: DSSS & FHSS, Co-channel interference	
2		**GSM Mobile services**	**8**
	2.1	GSM Mobile services, System Architecture, Radio interface, Protocols, Localization and Calling, Handover, security (A3, A5 & A8)	
	2.2	GPRS system and protocol architecture	
	2.3	UTRAN, UMTS core network; Improvements on Core Network,	
3		**Mobile Networking**	**8**
	3.1	Medium Access Protocol, Internet Protocol and Transport layer	
	3.2	Mobile IP: IP Packet Delivery, Agent Advertisement and Discovery, Registration, Tunneling and Encapsulation, Reverse Tunneling.	
	3.3	Mobile TCP: Traditional TCP, Classical TCP Improvements like Indirect TCP, Snooping TCP & Mobile TCP, Fast Retransmit/ Fast Recovery, Transmission/Timeout Freezing, Selective Retransmission	
4		**Wireless Local Area Networks**	**6**
	4.1	**Wireless Local Area Networks:** Introduction, Infrastructure and ad-hoc network	
	4.2	**IEEE 802.11:**System architecture , Protocol architecture , Physical layer, Medium access control layer, MAC management, 802.11a, 802.11b standard	
	4.3	Wi-Fi security : WEP ,WPA, Wireless LAN Threats , Securing Wireless Networks	

	4.4	Bluetooth: Introduction, User Scenario, Architecture, protocol stack	
5		**Mobility Management**	**6**
	5.1	**Mobility Management :** Introduction, IP Mobility, Optimization, IPv6	
	5.2	Macro Mobility : MIPv6, FMIPv6	
	5.3	Micro Mobility: CellularIP, HAWAII, HMIPv6	
6		**Long-Term Evolution (LTE) of 3GPP**	**7**
	6.1	**Long-Term Evolution (LTE) of 3GPP :** LTE System Overview, Evolution from UMTS to LTE	
	6.2	LTE/SAE Requirements, SAE Architecture	
	6.3	EPS: Evolved Packet System, E-UTRAN, Voice over LTE (VoLTE), Introduction to LTE-Advanced	
	6.4	Self Organizing Network (SON-LTE), SON for Heterogeneous Networks (HetNet), Comparison between Different Generations (2G, 3G, 4G and 5G), Introduction to 5G	

Textbooks:	
1	Jochen Schilller, "**Mobile Communication**", Addision wisely, Pearson Education
2	William Stallings "**Wireless Communications & Networks**", Second Edition, Pearson Education
3	Christopher Cox, "**An Introduction to LTE: LTE, LTE-Advanced, SAE and 4G Mobile Communications**", Wiley publications
4	Raj Kamal, **"Mobile Computing"**, 2/e, Oxford University Press-New
References:	
1	Seppo Hamalainen, Henning Sanneck , Cinzia Sartori, **"LTE Self-Organizing Networks (SON): Network Management Automation for Operational Efficiency",** Wiley publications
2	Ashutosh Dutta, Henning Schulzrinne **"Mobility Protocols and Handover Optimization: Design, Evaluation and Application",** IEEE Press, Wiley Publication
3	Michael Gregg, **"Build your own security lab",** Wiley India edition
4	Dipankar Raychaudhuri, Mario Gerla, **"Emerging Wireless Technologies and the Future Mobile Internet",** Cambridge
5	Andreas F. Molisch, **"Wireless Communications",** Second Edition, Wiley Publication

Assessment:	
Internal Assessment:	
Assessment consists of two class tests of 20 marks each. The first class test is to be conducted when approx. 40% syllabus is completed and second class test when additional 40% syllabus is completed. Duration of each test shall be one hour.	
End Semester Theory Examination:	
1	Question paper will comprise of total six questions.
2	All question carries equal marks
3	Questions will be mixed in nature (for example supposed Q.2 has part (a) from module 3 then part (b) will be from any module other than module 3)
4	Only Four question need to be solved.
5	In question paper weightage of each module will be proportional to number of respective lecture hours as mention in the syllabus.

Useful Links	
1	https://www.coursera.org/learn/smart-device-mobile-emerging-technologies
2	https://nptel.ac.in/courses/106/106/106106167/

Course Code:	Course Title	Credit
CSC604	Artificial Intelligence	3

Prerequisite: Discrete Mathematics, Data Structures	
Course Objectives:	
1	To conceptualize the basic ideas and techniques underlying the design of intelligent systems.
2	To make students understand and Explore the mechanism of mind that enables intelligent thought and action.
3	To make students understand advanced representation formalism and search techniques.
4	To make students understand how to deal with uncertain and incomplete information.
Course Outcomes: At the end of the course, the students will be able to	
1	Ability to develop a basic understanding of AI building blocks presented in intelligent agents.
2	Ability to choose an appropriate problem solving method and knowledge representation technique.
3	Ability to analyze the strength and weaknesses of AI approaches to knowledge– intensive problem solving.
4	Ability to design models for reasoning with uncertainty as well as the use of unreliable information.
5	Ability to design and develop AI applications in real world scenarios.

Module		Content	Hrs
1		**Introduction to Artificial Intelligence**	**4**
	1.1	Introduction, History of Artificial Intelligence, Intelligent Systems: Categorization of Intelligent System, Components of AI Program, Foundations of AI, Sub-areas of AI, Applications of AI, Current trends in AI.	
2		**Intelligent Agents**	**4**
	2.1	Agents and Environments, The concept of rationality, The nature of environment, The structure of Agents, Types of Agents, Learning Agent.	
	2.2	Solving problem by Searching: Problem Solving Agent, Formulating Problems, Example Problems.	
3		**Problem solving**	**10**
	3.1	Uninformed Search Methods: Breadth First Search (BFS), Depth First Search (DFS), Depth Limited Search, Depth First Iterative Deepening (DFID), Informed Search Methods: Greedy best first Search, A* Search, Memory bounded heuristic Search.	
	3.2	Local Search Algorithms and Optimization Problems: Hill climbing search Simulated annealing, Genetic algorithms.	
	3.3	**Adversarial Search:** Game Playing, Min-Max Search, Alpha Beta Pruning	
4		**Knowledge and Reasoning**	**12**
	4.1	Knowledge based Agents, Brief Overview of propositional logic, First Order Logic: Syntax and Semantic, Inference in FOL, Forward chaining, backward Chaining.	
	4.2	Knowledge Engineering in First-Order Logic, Unification, Resolution	

	4.3	Uncertain Knowledge and Reasoning: Uncertainty, Representing knowledge in an uncertain domain, The semantics of belief network, Simple Inference in belief network	
5		**Planning and Learning**	**5**
	5.1	The planning problem, Planning with state space search, Partial order planning, Hierarchical planning, Conditional Planning.	
	5.2	Learning: Forms of Learning, Theory of Learning, PAC learning. Introduction to statistical learning (Introduction only) Introduction to reinforcement learning: Learning from Rewards, Passive Reinforcement Learning, Active reinforcement Learning	
6		**AI Applications**	**4**
		A. Introduction to NLP- Language models, Grammars, Parsing B. Robotics - Robots, Robot hardware, Problems Robotics can solve C. AI applications in Healthcare, Retail, Banking	

Textbooks:	
1	Stuart J. Russell and Peter Norvig, "***Artificial Intelligence: A Modern Approach***", Fourth Edition" Pearson Education, 2020.
2	Saroj Kaushik, "***Artificial Intelligence***", Cengage Learning, First edition, 2011
3	George F Luger, "***Artificial Intelligence***" Low Price Edition, Fourth edition, Pearson Education.,2005
References:	
1	Nils J. Nilsson, Principles of Artificial Intelligence, Narosa Publication.
2	Deepak Khemani, A First Course in Artificial Intelligence, McGraw Hill Publication
3	Patrick H. Winston, Artificial Intelligence, 3rd edition, Pearson Education.
4	Elaine Rich and Kevin Knight, "***Artificial Intelligence***", Third Edition, McGraw Hill Education,2017.

Assessment:	
Internal Assessment:	
Assessment consists of two class tests of 20 marks each. The first class test is to be conducted when approx. 40% syllabus is completed and the second class test when an additional 40% syllabus is completed. Duration of each test shall be one hour.	
End Semester Theory Examination:	
1	Question paper will comprise a total of six questions.
2	All question carries equal marks
3	Questions will be mixed in nature (for example supposed Q.2 has part (a) from module 3 then part (b) will be from any module other than module 3)
4	Only Four questions need to be solved.
5	In question paper weightage of each module will be proportional to number of respective lecture hours as mentioned in the syllabus.

Useful Links	
1	https://nptel.ac.in/courses/106/105/106105078/
2	https://thestempedia.com/blog/simple-ai-and-machine-learning-projects-for-students-and-beginners/
3	https://nptel.ac.in/courses/106/105/106105079/

Course Code:	Course Title	Credit
CSDLO6011	Internet of Things	3

Prerequisite: C Programming, Digital Logic and Computer Architecture, Microprocessor, Computer Networks.	
Course Objectives:	
1	To equip students with the fundamental knowledge and basic technical competence in the field of Internet of Things (IoT).
2	To emphasize on core IoT functional Stack to build assembly language programs. To learn the Core IoT Functional Stack.
3	To understand the different common application protocols for IoT and apply IoT knowledge to key industries that IoT is revolutionizing.
4	To examines various IoT hardware items and software platforms used in projects for each platform that can be undertaken by a beginner, hobbyist, student, academician, or researcher to develop useful projects or products.
Course Outcomes: On the completion of the course, learners will be able to:	
1	Understand the concepts of IoT and the Things in IoT.
2	Emphasize core IoT functional Stack and understand application protocols for IoT.
3	Apply IoT knowledge to key industries that IoT is revolutionizing.
4	Examines various IoT hardware items and software platforms used in projects.

Module		Content	Hrs
1		**Introduction to Internet of Things (IoT)**	**7**
	1.1	What is IoT? - IoT and Digitization	
	1.2	IoT Impact – Connected Roadways, Connected Factory, Smart Connected Buildings, Smart Creatures	
	1.3	Convergence of IT and OT, IoT Challenges	
	1.4	The oneM2M IoT Standardized Architecture	
	1.5	The IoT World Forum (IoTWF) Standardized Architecture	
	1.6	IoT Data Management and Compute Stack – Design considerations and Data related problems, Fog Computing, Edge Computing, The Hierarchy of Edge, Fog and Cloud	
2		**Things in IoT**	**7**
	2.1	Sensors/Transducers – Definition, Principles, Classifications, Types, Characteristics and Specifications	
	2.2	Actuators –– Definition, Principles, Classifications, Types, Characteristics and Specifications	
	2.3	Smart Object – Definition, Characteristics and Trends	
	2.4	Sensor Networks – Architecture of Wireless Sensor Network, Network Topologies	
	2.5	Enabling IoT Technologies - Radio Frequency Identification Technology, Micro-Electro-Mechanical Systems (MEMS), NFC (Near Field Communication), Bluetooth Low Energy (BLE), LTE-A (LTE Advanced), IEEE 802.15.4– Standardization and Alliances, ZigBee.	
3		**The Core IoT Functional Stack**	**6**
	3.1	Layer 1 – Things: Sensors and Actuators Layer	

	3.2	Layer 2 – Communications Network Layer, Access Network Sublayer, Gateways and Backhaul Sublayer, Network Transport Sublayer, IoT Network Management Sublayer	
	3.3	Layer 3 – Applications and Analytics Layer, Analytics Vs. Control Applications, Data Vs. Network Analytics, Data Analytics Vs. Business Benefits, Smart Services	
4		**Application Protocols for IoT**	**7**
	4.1	The Transport Layer	
	4.2	IoT Application Transport Methods	
	4.3	Application Layer Protocol Not Present	
	4.4	SCADA - Background on SCADA, Adapting SCADA for IP, Tunneling Legacy SCADA over IP Networks, SCADA Protocol Translation, SCADA Transport over LLNs with MAP-T,	
	4.5	Generic Web-Based Protocols	
	4.6	IoT Application Layer Protocols – CoAP and MQTT	
5		**Domain Specific IoTs**	**6**
	5.1	Home Automation – Smart Lighting, Smart Appliances, Intrusion Detection, Smoke/Gas Detectors	
	5.2	Cities – Smart Parking, Smart Lighting, Smart Roads, Structural Health Monitoring, Surveillance	
	5.3	Environment – Weather Monitoring, Air Pollution Monitoring, Noise Pollution Monitoring, Forest Fire Detection, River Floods Detection	
	5.4	Energy – Smart Grids, Renewable Energy Systems, Prognostics	
	5.5	Retail – Inventory Management, Smart Payments, Smart Vending Machines	
	5.6	Logistics – Route Generation & Scheduling, Fleet Tracking, Shipment Monitoring	
	5.7	Agriculture – Smart Irrigation, Green House Control	
	5.8	Industry – Machine Diagnostics & Prognosis, Indoor Air Quality Monitoring	
	5.9	Health & Lifestyle – Health & Fitness Monitoring, Wearable Electronics	
6		**Create your own IoT**	**6**
	6.1	IoT Hardware - Arduino, Raspberry Pi, ESP32, Cloudbit/Littlebits, Particle Photon, Beaglebone Black.	
	6.2	IoT Software - languages for programming IoT hardware, for middleware applications and API development, for making front ends, REST and JSON-LD	
	6.3	A comparison of IoT boards and platforms in terms of computing	
	6.4	A comparison of IoT boards and platforms in terms of development environments and communication standards	
	6.5	A comparison of boards and platforms in terms of connectivity	
	6.6	A comparison of IoT software platforms	

Textbooks:	
1	David Hanes, Gonzalo Salgueiro, Patrick Grossetete, Rob Barton, Jerome Henry, ***"IoT Fundamentals – Networking Technologies, Protocols, and Use Cases for the Internet of Things",*** 1st Edition, Published by Pearson Education, Inc, publishing as Cisco Press, 2017.

2	Hakima Chaouchi, ***"The Internet of Things - Connecting Objects to the Web",*** 1st Edition, Wiley, 2010.
3	Perry Lea, ***"Internet of things For Architects",*** 1st Edition, Packt Publication, 2018
4	Arshdeep Bahga, Vijay Madisetti, ***"Internet of Things – Hands-On Approach",*** 2nd Edition, Universities Press, 2016.
References:	
1	Adrian McEwen & Hakim Cassimally, ***"Designing the Internet of Things",*** 1st Edition, Wiley, 2014.
2	Donald Norris, ***"Raspberry Pi – Projects for the Evil Genius",*** 2nd Edition, McGraw Hill, 2014.
3	Anand Tamboli ,***"Build Your Own IoT Platform",*** 1st Edition, Apress, 2019.

Assessment:	
Internal Assessment:	
Assessment consists of two class tests of 20 marks each. The first-class test is to be conducted when approx. 40% syllabus is completed and second-class test when additional 40% syllabus is completed. Duration of each test shall be one hour.	
End Semester Theory Examination:	
1	Question paper will comprise of total six questions.
2	All question carries equal marks
3	Questions will be mixed in nature (for example supposed Q.2 has part (a) from module 3 then part (b) will be from any module other than module 3)
4	Only Four question need to be solved.
5	In question paper weightage of each module will be proportional to number of respective lecture hours as mention in the syllabus.

Useful Links	
1	https://nptel.ac.in/courses/106/105/106105166/
2	https://nptel.ac.in/courses/108/108/108108098/
3	https://nptel.ac.in/courses/106/105/106105195/
4	https://www.coursera.org/specializations/IoT

Course Code:	Course Title	Credit
CSDLO6012	Digital Signal & Image Processing	3

Prerequisite: Applied Engineering Mathematics	
Course Objectives:	
1	To understand the fundamental concepts of digital signal processing and Image processing
2	To explore DFT for 1-D and 2-D signal and FFT for 1-D signal
3	To apply processing techniques on 1-D and Image signals
4	To apply digital image processing techniques for edge detection
Course Outcomes: On successful completion of course, learners will be able to:	
1	Understand the concept of DT Signal and DT Systems
2	Classify and analyze discrete time signals and systems
3	Implement Digital Signal Transform techniques DFT and FFT
4	Use the enhancement techniques for digital Image Processing
5	Apply image segmentation techniques

Module No.	Unit No.	Topic details	Hrs.
1.0		**Discrete-Time Signal and Discrete-Time System**	**10**
	1.1	Introduction to Digital Signal Processing, Sampling and Reconstruction, Standard DT Signals, Concept of Digital Frequency, Representation of DT signal using Standard DT Signals, Signal Manipulations (shifting, reversal, scaling, addition, multiplication).	
	1.2	Classification of Discrete-Time Signals, Classification of Discrete-Systems	
	1.3	Linear Convolution formulation for 1-D signal (without mathematical proof), Circular Convolution (without mathematical proof), Linear convolution using Circular Convolution. Auto and Cross Correlation formula evaluation, Concept of LTI system, Output of DT system using Time Domain Linear Convolution.	
2.0		**Discrete Fourier Transform**	**05**
	2.1	Introduction to DTFT, DFT, Relation between DFT and DTFT, IDFT	
	2.2	Properties of DFT without mathematical proof (Scaling and Linearity, Periodicity, Time Shift and Frequency Shift, Time Reversal, Convolution Property and Parseval's Energy Theorem). DFT computation using DFT properties.	
	2.3	Convolution of long sequences, Introduction to 2-D DFT	
3.0		**Fast Fourier Transform**	**04**
	3.1	Need of FFT, Radix-2 DIT-FFT algorithm,	
	3.2	DIT-FFT Flow graph for N=4 and 8, Inverse FFT algorithm.	
	3.3	Spectral Analysis using FFT	
4.0		**Digital Image Fundamentals**	**05**
	4.1	Introduction to Digital Image, Digital Image Processing System, Sampling and Quantization	
	4.2	Representation of Digital Image, Connectivity	
	4.3	Image File Formats: BMP, TIFF and JPEG.	
5.0		**Image Enhancement in Spatial domain**	**09**
	5.1	Gray Level Transformations, Zero Memory Point Operations,	
	5.2	Histogram Processing, Histogram equalization.	

	5.3	Neighborhood processing, Image averaging, Image Subtraction, Smoothing Filters - Low pass averaging, Sharpening Filters-High Pass Filter, High Boost Filter, Median Filter for reduction of noise	
6.0		**Image Segmentation**	**06**
	6.1	Fundamentals, Segmentation based on Discontinuities and Similarities	
	6.2	Point, line and Edge Detection, Image edge detection using Robert, Prewitt and Sobel masks, Image edge Detection using Laplacian mask	
	6.3	Region based segmentation: Region Growing, Region Splitting and Merging	
		Total	**39**

Textbooks:	
1	John G. Proakis, Dimitris and G .Manolakis, **"Digital Signal Processing: Principles, Algorithms, and Applications"**, 4th Edition, Pearson Education, 2007
2	A. Anand Kumar, **"Digital Signal Processing"**, 2nd Edition, PHI Learning Pvt. Ltd. 2014.
3	Rafel C. Gonzalez and Richard E. Woods, **"Digital Image Processing"**, Pearson Education Asia, 4th Edition, 2018.
4	S. Sridhar, **"Digital Image Processing"**, 2nd Edition, Oxford University Press, 2012.
References:	
1	Sanjit Mitra, **"Digital Signal Processing: A Computer Based Approach"**, 4th Edition, Tata McGraw Hill, 2013
2	S. Salivahanan, A. Vallavaraj, and C. Gnanapriya, **"Digital Signal Processing"**, 2nd Edition, Tata McGraw Hill Publication, 2011.
3	S. Jayaraman, E. Esakkirajan and T. Veerkumar, **"Digital Image Processing"**, 3rd Edition, Tata McGraw Hill Education Private Ltd, 2009.
4	Anil K. Jain, **"Fundamentals of Digital Image Processing"**, 4th Edition, Prentice Hall of India Private Ltd,.1989
Assessment:	
Internal Assessment:	
Assessment consists of two class tests of 20 marks each. The first class test is to be conducted when approx. 40% syllabus is completed and second class test when additional 50% syllabus is completed. Duration of each test shall be one hour.	
End Semester Theory Examination:	
1	Question paper will comprise of total six questions.
2	All question carries equal marks
3	Questions will be mixed in nature (for example supposed Q.2 has part (a) from module 3 then part (b) will be from any module other than module 3)
4	Only Four question need to be solved.
5	In question paper weightage of each module will be proportional to number of respective lecture hours as mention in the syllabus.

Useful Links	
1	https://nptel.ac.in/courses/
2	https://swayam.gov.in

Course Code:	Course Title	Credit
CSDLO6013	Quantitative Analysis	3

Prerequisite: Applied Mathematics	
Course Objectives:	
1	Introduction to the basic concepts in Statistics
2	Understand concept of data collection & sampling methods.
3	Introduction to Regression, Multiple Linear Regression
4	Draw interference using Statistical inference methods
5	Tests of hypotheses
Course Outcomes:	
1	Recognize the need of Statistics and Quantitative Analysis
2	Apply the data collection and the sampling methods.
3	Analyze using concepts of Regression, Multiple Linear Regression
4	Formulate Statistical inference drawing methods.
5	Apply Testing of hypotheses

Module	Content	Hrs
1	**Introduction to Statistics**	**6**
	Functions – Importance – Uses and Limitations of Statistics. Statistical data– Classification, Tabulation, Diagrammatic & Graphic representation of data	
2	**Data Collection & Sampling Methods**	**6**
	Primary & Secondary data, Sources of data, Methods of collecting data. Sampling – Census & Sample methods –Methods of sampling, Probability Sampling and Non-Probability Sampling.	
3	**Introduction to Regression**	**8**
	Mathematical and Statistical Equation – Meaning of Intercept and Slope – Error term – Measure for Model Fit –R2 – MAE – MAPE.	
4	**Introduction to Multiple Linear Regression**	**8**
	Multiple Linear Regression Model, Partial Regression Coefficients, Testing Significance overall significance of Overall fit of the model, Testing for Individual Regression Coefficients	
5	**Statistical inference**	**6**
	Random sample -Parametric point estimation unbiasedness and consistence - method of moments and method of maximum likelihood.	
6	**Tests of hypotheses**	**5**
	Null and Alternative hypotheses. Types of errors. Neyman-Pearson lemma-MP and UMP tests.	

Textbooks:	
1	Agarwal, B.L. (2006):-Basic Statistics. Wiley Eastern Ltd., New Delhi
2	Gupta, S. P. (2011):-Statistical Methods. Sultanchand&Sons, New Delhi
3	Sivathanupillai, M &Rajagopal, K. R. (1979):-Statistics for Economics Students.
4	Hogg ,R.V. and Craig, A.T.(2006), An introduction to mathematical statistics, Amerind publications.
References:	

1	Arora, P.N., SumeetArora, S. Arora (2007):- Comprehensive Statistical Methods. Sultan Chand, New Delhi
2	Montgomery,D.C. ,Peck E.A, & Vining G.G.(2003). Introduction to Linear Regression Analysis. John Wiley and Sons,Inc.NY
3	Mood AM, Graybill FA, and Boes, D.C.(1985), Introduction to the theory of statistics, McGrawhill Book Company, New Delhi.
4	Kapur, J.N. and Saxena,H.C.(1970), Mathematical statistics, Sultan Chand & company, New Delhi..

Assessment:	
Internal Assessment:	
Assessment consists of two class tests of 20 marks each. The first class test is to be conducted when approx. 40% syllabus is completed and second class test when additional 40% syllabus is completed. Duration of each test shall be one hour.	
End Semester Theory Examination:	
1	Question paper will comprise of total six questions.
2	All question carries equal marks
3	Questions will be mixed in nature (for example supposed Q.2 has part (a) from module 3 then part (b) will be from any module other than module 3)
4	Only Four question need to be solved.
5	In question paper weightage of each module will be proportional to number of respective lecture hours as mention in the syllabus.

Lab Code	Lab Name	Credit
CSL601	**System Programming and Compiler Construction Lab**	**1**

Prerequisite: Theoretical computer science, Operating system. Computer Organization and Architecture	
Lab Outcomes: At the end of the course, the students will be able to	
1	Generate machine code by implementing two pass assemblers.
2	Implement Two pass macro processor.
3	Parse the given input string by constructing Top down/Bottom-up parser.
4	Identify and Validate tokens for given high level language and Implement synthesis phase of compiler.
5	Explore LEX & YACC tools.

Suggested List of Experiments	
Sr. No.	**Title of Experiment**
1	Implementations of two pass Assembler.
2	Implementation of Two pass Macro Processor.
3	Implementation of Lexical Analyzer.
4	Implementation of Parser (Any one).
5	Implementation of Intermediate code generation phase of compiler.
6	Implementation of code generation phase of compiler.
7	Study and implement experiments on LEX, YACC.

Reference Books:	
1	Andrew W. Appel Princeton University. Jens Palsberg *Modern Compiler. Implementation in Java*, Second Edition. Purdue University. CAMBRIDGE University press @2002.
2	Charles N. Fischer, Richard J. LeBlanc *Crafting a compiler with C , pearson Education 2007*

Term Work:	
1	Term work should consist of experiments based on suggested experiment list.
2	Journal must include at least 2 assignments on content of theory and practical of "System Programming and Compiler Construction"
3	The final certification and acceptance of term work ensures that satisfactory performance of laboratory work and minimum passing marks in term work.
4	The distribution of marks for term work shall be as follows: Laboratory work (experiments/case studies): .....(15) Marks. Assignment: ..... (05) Marks. Attendance ..... (05) Marks TOTAL: ..... (25) Marks.
Oral & Practical exam will be based on the above and CSC601 syllabus.	

Lab Code	Lab Name	Credit
CSL602	Cryptography & System Security Lab	1

Prerequisite: Computer Network	
Lab Objectives:	
1	To apply various encryption techniques
2	To study and implement various security mechanism
3	To explore the network security concept and tools
Lab Outcomes: At the end of the course, the students will be able to	
1	apply the knowledge of symmetric and asymmetric cryptography to implement simple ciphers.
2	explore the different network reconnaissance tools to gather information about networks.
3	explore and use tools like sniffers, port scanners and other related tools for analysing packets in a Network.
4	set up firewalls and intrusion detection systems using open-source technologies and to explore email security.
5	explore various attacks like buffer-overflow and web application attack.

Suggested List of Experiments	
Sr. No	**Title of Experiment**
1	Design and Implementation of a product cipher using Substitution and Transposition ciphers.
2	Implementation and analysis of RSA crypto system.
3	Implementation of Diffie Hellman Key exchange algorithm
4	For varying message sizes, test integrity of message using MD-5, SHA-1, and analyse the performance of the two protocols. Use crypt APIs.
5	Study the use of network reconnaissance tools like WHOIS, dig, traceroute, ns lookup to gather information about networks and domain registrars.
6	Study of packet sniffer tools: wireshark,: 1. Download and install wireshark and capture icmp, tcp, and http packets in promiscuous mode. 2. Explore how the packets can be traced based on different filters.
7	Download and install nmap. Use it with different options to scan open ports, perform OS fingerprinting, do a ping scan, tcp port scan, udp port scan, xmas scan etc.
8	Detect ARP spoofing using nmap and/or open-source tool ARPWATCH and wireshark. Use arping tool to generate gratuitous arps and monitor using wireshark
9	Simulate DOS attack using Hping, hping3 and other tools
10	Simulate buffer overflow attack using Ollydbg, Splint, Cpp check etc
11	a. Set up IPSEC under LINUX. b. Set up Snort and study the logs.
12	Setting up personal Firewall using iptables
13	Explore the GPG tool of linux to implement email security
14	SQL injection attack, Cross-Cite Scripting attack simulation
15	Case Study /Seminar: Topic beyond syllabus related to topics covered.

Term Work:	
1	Term work should consist of 10 experiments.
2	Journal must include at least 2 assignments on content of theory and practical of

	"Cryptography and System Security "
3	The final certification and acceptance of term work ensures that satisfactory performance of laboratory work and minimum passing marks in term work.
4	The distribution of marks for term work shall be as follows: Lab Performance 15 Marks Assignments 05 Marks Attendance (Theory & practical) 05 Marks

Lab Code	Lab Name	Credit
CSL603	Mobile Computing Lab	1

Prerequisite: Computer Networks	
Lab Objectives:	
1	To learn the mobile computing tools and software for implementation.
2	To understand the security algorithms in mobile networks
3	To learn security concepts
Lab Outcomes: At the end of the course, the students will be able to	
1	develop and demonstrate mobile applications using various tools
2	articulate the knowledge of GSM, CDMA & Bluetooth technologies and demonstrate it.
3	Students will able to carry out simulation of frequency reuse, hidden/exposed terminal problem
4	implement security algorithms for mobile communication network
5	demonstrate simulation and compare the performance of Wireless LAN

Suggested List of Experiments

The softwares like Android Studio, J2ME, NS2, NS3 and any other software which is suitable are recommended for performing the practical.

Sr. No.	Title of Experiment
1	Implementation a Bluetooth network with application as transfer of a file from one device to another.
2	To implement a basic function of Code Division Multiple Access (CDMA).
3	Implementation of GSM security algorithms (A3/A5/A8)
4	Illustration of Hidden Terminal/Exposed terminal Problem. Consider two Wi-fi base stations (STA) and an access point (AP) located along the x-axis. All the nodes are fixed. The AP is situated at the middle of the two STA, the distance of separation being 150 m. [variable]. Node #0 and node #1 are the hidden terminals. Both are transmitting some data to the AP (almost at same rate) at the same time. The loss across the wireless link between each STA and the AP is fixed at 50 dB irrespective of the distance of separation. To study how RTS/CTS helps in wireless networks, 1. No RTS/CTS is being sent. 2. Nodes do exchange RTS/CTS packets. **Compare the no. of packet retransmissions required in both the cases (as obtained in the output) and compare the results.**
5	To setup & configuration of Wireless Access Point (AP). Analyze the Wi-Fi communication range in the presence of the access point (AP) and the base station (BS). Consider BS and AP are static. Find out the maximum distance to which two way communications is possible. Try multiple iterations by adjusting its distance in the code and test it.
6	Study of security tools (like Kismet,Netstumbler)
7	Develop an application that uses GUI components.
8	Write an application that draws basic graphical primitives on the screen.
9	Develop an application that makes use of database.
10	Develop a native application that uses GPS location information.
11	Implement an application that creates an alert upon receiving a message.

12	Implementation of income tax/loan EMI calculator and deploy the same on real devices (Implementation of any real time application)

Term Work:	
1	Term work should consist of 10 experiments.
2	Journal must include at least 2 assignments on content of theory and practical of " Mobile Computing"
3	The final certification and acceptance of term work ensures that satisfactory performance of laboratory work and minimum passing marks in term work.
4	Total 25 Marks (Experiments: 15-marks, Attendance Theory& Practical: 05-marks, Assignments: 05-marks)

Useful Links	
1	https://nptel.ac.in/courses/106/106/106106147/
2	https://www.coursera.org/learn/smart-device-mobile-emerging-technologies

Lab Code	Lab Name	Credit
CSL604	**Artificial Intelligence Lab**	**1**

Prerequisite: Discrete Mathematics, Data Structure	
Lab Objectives:	
1	To realize the basic techniques to build intelligent systems
2	To apply appropriate search techniques used in problem solving
3	To create knowledge base for uncertain data
Lab Outcomes: At the end of the course, the students will be able to	
1	Identify languages and technologies for Artificial Intelligence
2	Understand and implement uninformed and informed searching techniques for real world problems.
3	Create a knowledge base using any AI language.
4	Design and implement expert systems for real world problems.

Suggested List of Experiments (programming in python)	
Sr. No.	**Title of Experiment**
1	One case study on AI applications published in IEEE/ACM/Springer or any prominent journal.
2	Assignments on State space formulation and PEAS representation for various AI applications
3	Program on uninformed search methods.
4	Program on informed search methods.
5	Program on Game playing algorithms.
6	Program for first order Logic
7	Planning Programming
8	Implementation for Bayes Belief Network
Note: Any other practical covering the syllabus topics and subtopics can be conducted. The programming assignment for First order logics could be in the form of a mini project	

Term Work:	
1	Term work should consist of a minimum of 8 experiments.
2	Journal must include at least 2 assignments on content of theory and practical of "Artificial Intelligence"
3	The final certification and acceptance of term work ensures that satisfactory performance of laboratory work and minimum passing marks in term work.
4	Total 25 Marks (Experiments: 15-marks, Attendance Theory & Practical: 05-marks, Assignments: 05-marks)
Oral & Practical exam: Based on the entire syllabus of CSC604: Artificial Intelligence	

Lab Code	Lab Name	Credit
CSL605	**Cloud Computing**	**2**

Prerequisite: Computer Networks

Lab Objectives: The course has following objectives

1	To make students familiar with key concepts of virtualization.
2	To make students familiar with various deployment models of cloud such as private, public, hybrid and community so that they star using and adopting appropriate type of cloud for their application.
3	To make students familiar with various service models such as IaaS, SaaS, PaaS, Security as a Service (SECaaS) and Database as a Service.
4	To make students familiar with security and privacy issues in cloud computing and how to address them.

Lab Outcomes: At the end of the course, the students will be able to

1	Implement different types of virtualization techniques.
2	Analyze various cloud computing service models and implement them to solve the given problems.
3	Design and develop real world web applications and deploy them on commercial cloud(s).
4	Explain major security issues in the cloud and mechanisms to address them.
5	Explore various commercially available cloud services and recommend the appropriate one for the given application.
6	Implement the concept of containerization

Module	Detailed Contents	Hours	LO
01	**Title:** Introduction and overview of cloud computing. **Objective:** To understand the origin of cloud computing, cloud cube model, NIST model, characteristics of cloud, different deployment models, service models, advantages and disadvantages.	2	2
02	**Title:** To study and implement Hosted Virtualization using VirtualBox& KVM. **Objective:** To know the concept of Virtualization along with their types, structures and mechanisms. This experiment should have demonstration of creating and running Virtual machines inside hosted hypervisors like VirtualBox and KVM with their comparison based on various virtualization parameters.	2	1
03	**Title:** To study andImplement Bare-metal Virtualization using Xen, HyperV or VMware Esxi. **Objective:** To understand the functionality of Bare-metal hypervisors and their relevance in cloud computing platforms. This experiment should have demonstration of install, configure and manage Bare Metal hypervisor along with instructions to create and run virtual machines inside it. It should also emphasize on accessing VMs in different environments along with additional services provided by them like Load balancing, Auto-Scaling, Security etc.	4	1

04	**Title:** To study andImplement Infrastructure as a Service using AWS/Microsoft Azure. **Objective:** To demonstrate the steps to create and run virtual machines inside Public cloud platform. This experiment should emphasize on creating and running Linux/Windows Virtual machine inside Amazon EC2 or Microsoft Azure Compute and accessing them using RDP or VNC tools.	4	2
05	**Title:** To study andImplement Platform as a Service using AWS Elastic Beanstalk/ Microsoft Azure App Service. **Objective:** To demonstrate the steps to deploy Web applications or Web services written in different languages on AWS Elastic Beanstalk/ Microsoft Azure App Service.	4	2
06	**Title:** To study andImplementStorage as a Service using Own Cloud/ AWS S3, Glaciers/ Azure Storage. **Objective:** To understand the concept of Cloud storage and to demonstrate the different types of storages like object storage, block level storages etc. supported by Cloud Platforms like Own Cloud/ AWS S3, Glaciers/ Azure Storage.	4	2
07	**Title:** To study andImplementDatabase as a Service on SQL/NOSQL databases like AWS RDS, AZURE SQL/ MongoDB Lab/ Firebase. **Objective:** To know the concept of Database as a Service running on cloud and to demonstrate the CRUD operations on different SQL and NOSQL databases running on cloud like AWS RDS, AZURE SQL/ Mongo Lab/ Firebase.	2	2
08	**Title:** To study andImplementSecurity as a Service on AWS/Azure **Objective:** To understand the Security practices available in public cloud platforms and to demonstrate various Threat detection, Data protection and Infrastructure protection services in AWS and Azure.	3	4
09	**Title:** To study and implement Identity and Access Management (IAM) practices on AWS/Azure cloud. **Objective:** To understand the working of Identity and Access Management IAM in cloud computing and to demonstrate the case study based on Identity and Access Management (IAM) on AWS/Azure cloud platform.	2	2
10	**Title:** To study and Implement Containerization using Docker **Objective:** To know the basic differences between Virtual machine and Container. It involves demonstration of creating, finding, building, installing, and running Linux/Windows application containers inside local machine or cloud platform.	4	6

11	**Title:** To study and implement container orchestration using Kubernetes **Objective:** To understand the steps to deploy Kubernetes Cluster on local systems, deploy applications on Kubernetes, creating a Service in Kubernetes, develop Kubernetes configuration files in YAML and creating a deployment in Kubernetes using YAML,	4	6
12	**Mini-project:** Design a Web Application hosted on public cloud platform [It should cover the concept of IaaS, PaaS, DBaaS, Storage as a Service, Security as a Service etc.]	4	3, 5

Sr. No.	Suggested Assignment List (Any two)	LO
1	Assignment based on selection of suitable cloud platform solution based on requirement analysis considering given problem statement	5
2	Assignment on recent trends in cloud computing and related technologies	5
3	Assignment on comparative study of different computing technologies [Parallel, Distributed, Cluster, Grid, Quantum)	5
4	Comparative study of different hosted and bare metal Hypervisors with suitable parameters along with their use in public/private cloud platform	1
5	Assignment on explore and compare the similar type of services provided by AWS and Azure [Any ten services]	5

Digital Material:

Sr. No.	Topic	Link
1	Introduction and overview of cloud computing	https://www.nist.gov/system/files/documents/itl/cloud/NIST_SP-500-291_Version-2_2013_June18_FINAL.pdf
2	Hosted Virtualization using KVM	https://phoenixnap.com/kb/ubuntu-install-kvm\
3	Baremetal Virtualization using Xen	https://docs.citrix.com/en-us/xenserver/7-1/install.html
4	IaaS, PaaS, STaaS, DbaaS, IAM and Security as a Service on AWS and Azure	1) AWS https://docs.aws.amazon.com/ 2) MS Azure https://docs.microsoft.com/en-us/azure
5	Docker	https://docs.docker.com/get-started/

6	Kubernetes	https://kubernetes.io/docs/home/

Textbooks:	
1	Bernard Golden, “Amazon Web Services for Dummies”, John Wiley & Sons, Inc.
2	Michael Collier, Robin Shahan, “Fundamentals of Azure, Microsoft Azure Essentials”, Microsoft Press.
3	RajkumarBuyya, Christian Vecchiola, S ThamaraiSelvi, “Mastering Cloud Computing”, Tata McGraw-Hill Education.
4	Barrie Sosinsky, “Cloud Computing Bible”, Wiley publishing.
5	John Paul Mueller, “AWS for Admins for Developers”, John Wiley & Sons, Inc.
6	Ken Cochrane, Jeeva S. Chelladhurai, NeependraKhare , “Docker Cookbook - Second Edition”, Packt publication
7	Jonathan Baier, “Getting Started with Kubernetes-Second Edition”, Packt Publication.

Term Work:	
1	Term work should consist of 10 experiments and a mini project.
2	Journal must include at least 2 assignments.
3	The final certification and acceptance of term work ensures that satisfactory performance of laboratory work and minimum passing marks in term work.
4	Total 50 Marks (Experiments: 15-marks, Mini project (Implementation) 15 marks, Mini Project Presentation & Report [for deployment, utilization, monitoring and billing] 10 Marks, Attendance 05-marks, Assignments: 05-marks)
Oral examination will be based on Laboratory work, mini project and above syllabus.	

Course code	Course Name	Credits
CSM601	Mini Project 2B	02

Objectives	
1	To understand and identify the problem
2	To apply basic engineering fundamentals and attempt to find solutions to the problems.
3	Identify, analyze, formulate and handle programming projects with a comprehensive and systematic approach
4	To develop communication skills and improve teamwork amongst group members and inculcate the process of self-learning and research.
Outcome: Learner will be able to…	
1	Identify societal/research/innovation/entrepreneurship problems through appropriate literature surveys
2	Identify Methodology for solving above problem and apply engineering knowledge and skills to solve it
3	Validate, Verify the results using test cases/benchmark data/theoretical/ inferences/experiments/simulations
4	Analyze and evaluate the impact of solution/product/research/innovation /entrepreneurship towards societal/environmental/sustainable development
5	Use standard norms of engineering practices and project management principles during project work
6	Communicate through technical report writing and oral presentation. ● The work may result in research/white paper/ article/blog writing and publication ● The work may result in business plan for entrepreneurship product created ● The work may result in patent filing.
7	Gain technical competency towards participation in Competitions, Hackathons, etc.
8	Demonstrate capabilities of self-learning, leading to lifelong learning.
9	Develop interpersonal skills to work as a member of a group or as leader
Guidelines for Mini Project	
1	Mini project may be carried out in one or more form of following: Product preparations, prototype development model, fabrication of set-ups, laboratory experiment development, process modification/development, simulation, software development, integration of software (frontend-backend) and hardware, statistical data analysis, creating awareness in society/environment etc.
2	Students shall form a group of 3 to 4 students, while forming a group shall not be allowed less than three or more than four students, as it is a group activity.
3	Students should do survey and identify needs, which shall be converted into problem statement for mini project in consultation with faculty supervisor/head of department/internal committee of faculties.
4	Students shall submit an implementation plan in the form of Gantt/PERT/CPM chart, which will cover weekly activity of mini projects.
5	A logbook may be prepared by each group, wherein the group can record weekly work progress, guide/supervisor can verify and record notes/comments.
6	Faculty supervisors may give inputs to students during mini project activity; however, focus shall be on self-learning.
7	Students under the guidance of faculty supervisor shall convert the best solution into a working model using various components of their domain areas and demonstrate.
8	The solution to be validated with proper justification and report to be compiled in standard format of University of Mumbai. Software requirement specification (SRS) documents, research papers, competition certificates may be submitted as part of annexure to the report.

9	With the focus on self-learning, innovation, addressing societal/research/innovation problems and entrepreneurship quality development within the students through the Mini Projects, it is preferable that a single project of appropriate level and quality be carried out in two semesters by all the groups of the students. i.e. Mini Project 2 in semesters V and VI.
10	However, based on the individual students or group capability, with the mentor's recommendations, if the proposed Mini Project adhering to the qualitative aspects mentioned above, gets completed in odd semester, then that group can be allowed to work on the extension of the Mini Project with suitable improvements/modifications or a completely new project idea in even semester. This policy can be adopted on a case by case basis.

Term Work

The review/ progress monitoring committee shall be constituted by the heads of departments of each institute. The progress of the mini project to be evaluated on a continuous basis, based on the SRS document submitted. minimum two reviews in each semester.

In continuous assessment focus shall also be on each individual student, assessment based on individual's contribution in group activity, their understanding and response to questions.

	Distribution of Term work marks for both semesters shall be as below:	**Marks 25**
1	Marks awarded by guide/supervisor based on logbook	10
2	Marks awarded by review committee	10
3	Quality of Project report	05

Review / progress monitoring committee may consider following points for assessment based on either one year or half year project as mentioned in general guidelines

One-year project:

1	In the first semester the entire theoretical solution shall be made ready, including components/system selection and cost analysis. Two reviews will be conducted based on a presentation given by a student group. • First shall be for finalization of problem • Second shall be on finalization of proposed solution of problem.
2	In the second semester expected work shall be procurement of component's/systems, building of working prototype, testing and validation of results based on work completed in an earlier semester. • First review is based on readiness of building working prototype to be conducted. • Second review shall be based on poster presentation cum demonstration of working model in the last month of the said semester.

Half-year project:

1	In this case in one semester students' group shall complete project in all aspects including, • Identification of need/problem • Proposed final solution • Procurement of components/systems • Building prototype and testing
2	Two reviews will be conducted for continuous assessment, • First shall be for finalization of problem and proposed solution • Second shall be for implementation and testing of solution.

Mini Project shall be assessed based on following points

1	Clarity of problem and quality of literature Survey for problem identification
2	Requirement gathering via SRS/ Feasibility Study
3	Completeness of methodology implemented

4	Design, Analysis and Further Plan
5	Novelty, Originality or Innovativeness of project
6	Societal / Research impact
7	Effective use of skill set : Standard engineering practices and Project management standard
8	Contribution of an individual's as member or leader
9	Clarity in written and oral communication
10	**Verification and validation of the solution/ Test Cases**
11	**Full functioning of working model as per stated requirements**
12	**Technical writing /competition/hackathon outcome being met**

In one year project (sem V and VI), first semester evaluation may be based on first 10 criteria and remaining may be used for second semester evaluation of performance of students in mini projects.
In case of half year projects (completing in VI sem) all criteria's in generic may be considered for evaluation of performance of students in mini projects.

Guidelines for Assessment of Mini Project Practical/Oral Examination:	
1	Report should be prepared as per the guidelines issued by the University of Mumbai.
2	Mini Project shall be assessed through a presentation and demonstration of working model by the student project group to a panel of Internal and External Examiners preferably from industry or research organizations having experience of more than five years approved by the head of Institution.
3	Students shall be motivated to publish a paper/participate in competition based on the work in Conferences/students competitions.