



**MECHANICAL
ENGINEERING
BROCHURE
2024 -2025**

University BDT College of Engineering
Davangere- 577 004,
Karnataka, India
(A Constituent College of VTU, Belagavi)



Edited by: Dr. S. B. Mallur
Professor-Emeritus



Vision of VTU

To become an outstanding Technological University at the cutting edge of Science and Technology that produces world class Knowledge-delivery, Research, Extension and Leadership in Technology innovation for Industry and Society.

Mission of VTU

To plan the development of technical education, to establish value-based and need-based education and training in engineering and technology, with a view to generate qualified and competent manpower, responsive to technological and societal needs.



VISION & MISSION OF UBDT COLLEGE OF ENGINEERING DAVANGERE

Vision of the Institute



To be a Center-of-Excellence in engineering education, technology and research with an emphasis on regional and societal needs.

Mission of the Institute

M1: To impart quality technical education through practice based teaching-learning process in the present and emerging technological scenario.

M2: To inculcate employability skills, research culture, entrepreneurship and human values.



A Place to
Grow, Excel,
Invent &
Innovate!

VISION

**DEPARTMENT OF
MECHANICAL ENGINEERING**

To achieve excellence by imparting quality education in Mechanical Engineering to cater to the needs and challenges of both industry and society

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MISSION

**DEPARTMENT OF
MECHANICAL ENGINEERING**

M1: Providing academic environment through effective teaching-learning process to acquire the knowledge in Mechanical Engineering.

M2: Promote usage of modern tools and computational techniques for sustainable solutions and to address the societal challenges.

M3: Encourage teamwork, life-long learning, and communication skills to serve globally with ethics.

N

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO1: Graduates will acquire fundamental technical knowledge and analytical skills to become successful mechanical engineers to serve the industry and society.

PEO2: Graduates will equip with self-learning abilities for their professional careers and pursue further studies or entrepreneurial endeavours.

PEO3: Graduates will harness the potential to bridge the gap between industry and academia for societal needs with a focus on research and innovation.

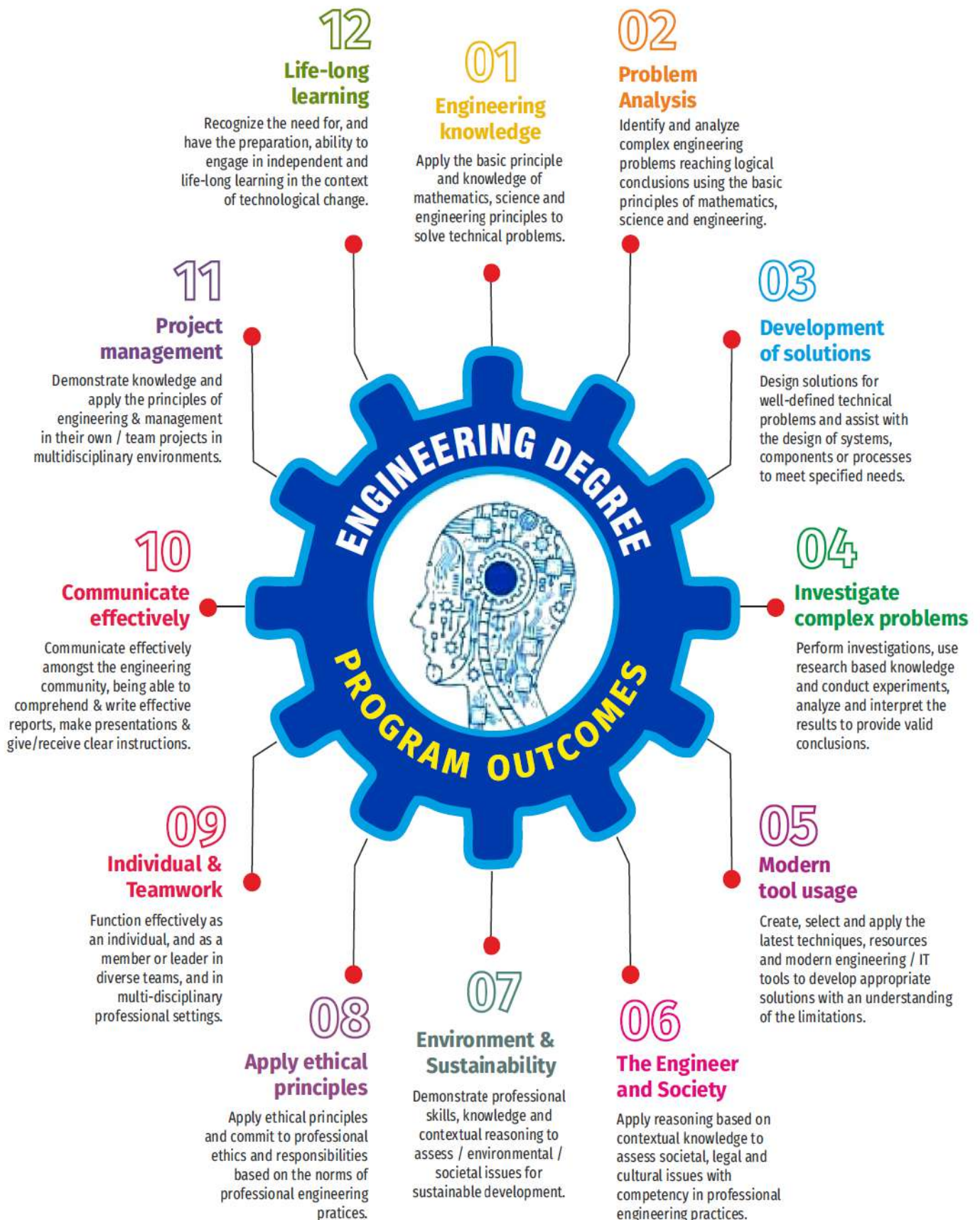
PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1: Ability to understand the concept of mechanical engineering and apply them in various areas like design and development, thermal and fluid systems, materials and manufacturing, automation, and management science to solve the real time problems.

PSO2: Ability to solve mechanical engineering problems using analytical, software, and computational tools with a focus on research and innovation to arrive at sustainable and cost-effective solution.

PROGRAMME OUTCOMES(POs)

PROGRAM OUTCOME REPRESENTS THE KNOWLEDGE, SKILLS AND ATTITUDES THAT THE STUDENTS WOULD BE EXPECTED TO HAVE AT THE END OF THE 4 YEAR ENGINEERING DEGREE PROGRAM



About Mechanical Engineering

Who is Engineer?

- ✓ An engineer is a person who uses scientific knowledge to solve practical problems
- ✓ Engineers create new things and make old things better

What is Mechanical Engineering?

- ✓ Technically, mechanical engineering is the application of the principles and problem-solving techniques of engineering from design to manufacturing to the marketplace for any object.
- ✓ Mechanical engineers analyse their work using the principles of motion, energy, and force— ensuring that designs function safely, efficiently, and reliably, all at a competitive cost.
- ✓ Mechanical engineers make a difference. That's because mechanical engineering careers center on creating technologies to meet human needs. Virtually every product or service in modern life has probably been touched in some way by a mechanical engineer to help humankind.
- ✓ This includes solving today's problems and creating future solutions in health care, energy, transportation, world hunger, space exploration, climate change, and more.
- ✓ Mechanical engineers use tools such as computer-aided design (CAD), and product life cycle management to design and analyse manufacturing plants, industrial equipment and machinery, heating and cooling systems, transport systems, aircraft, watercraft, robotics, medical devices, weapons, and others. It is the branch of engineering that involves the design, production, and operation of machinery

Skills

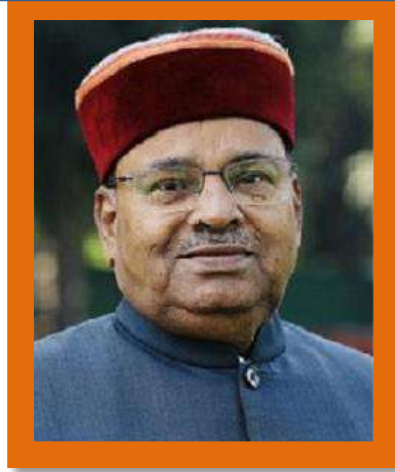
- ✓ **1 Problem solving:** A big part of a mechanical engineer's job is solving problems using mechanical or thermal devices. Mechanical engineers need to be strong analytical thinkers who are capable of solving problems brought to them by clients or employers.
- ✓ **2 Creativity:** Mechanical engineering involves developing and designing products, which range from batteries to electric generators to medical devices. Inventing products involves a lot of creativity.
- ✓ **3 Communication Skills:** Often, mechanical engineers develop a product for a client. They may have to explain complex machines or devices to people who are not familiar with mechanical engineering. They have to be able to explain their ideas clearly and effectively, and this takes strong communication skills.
- ✓ **4 Teamwork:** Mechanical engineering involves lots of teamwork. Engineers often work in groups to invent technologies and solve problems. They might work with people who are not mechanical engineers, such as computer scientists or architects.
- ✓ **5 Math Skills:** Mechanical engineers need to be comfortable using math to solve problems. The math skills required in mechanical engineering include calculus and statistics. They need to be able to apply these skills to analyse problems and design solutions.

About Mechanical Engineering

What do Mechanical Engineers do?

- ✓ **Mechanical engineering combines creativity, knowledge and analytical tools to complete the difficult task of shaping an idea into reality.**
 - ✓ **Mechanical engineers have an enormous range of opportunity and their education mirrors this breadth of subjects. Students concentrate on one area while strengthening analytical and problem-solving skills applicable to any engineering situation.**
 - **① Fluid Mechanics and Heat Transfer:** This involves understanding the different factors that affect fluid flow in pipes, AC's, tanks, rockets, jet engines and air crafts. It involves optimizing the fluid flow and heat distributions in various devices. Computational Fluid Dynamics is commonly used software here. Optimizing heat distributions in HVAC components is the area of potential highest employment here.
 - **② Acoustics:** It's the branch of engineering that explores vibratory phenomenon in solid structures, in air and water.
 - **③ Renewable Energy:** This is a fast growing field; when you look at the combined fields of wind, solar and electrical storage
 - **④ Structural Mechanics:** This involves working with different structures to increase their strength and reduce weight. Optimizing the weight distributions so that material is allocated in important areas of the structure. Commonly used software here is Finite Element Analysis (FEA).
 - **⑤ Manufacturing:** is an important step in mechanical engineering. Within the field, researchers investigate the best processes to make manufacturing more efficient
 - **⑥ Mechatronics:** This is among the fastest growing fields in Mechanical Engineering, and requires knowledge of mechanical engineering principles, electronics and computer science (programming). The knowledge of various skill sets makes one very employable, especially with the growth of IOT (internet of things).
 - **⑦ Bio Engineering:** Mimicking birds and animals to achieve engineering progress has always been a benefit to the engineering community. e.g. Mimicking of birds to invent planes
 - **⑧ Robotics:** This involves automation of mechanical systems by programming hardware devices. This is a fast growing field which involves knowledge of a variety of fields across various engineering disciplines. Besides these fields, there are several Mechanical Engineers who work in Consulting, IT Services, programming and industrial engineering jobs
- what do mechanical engineers do?

OFFICERS OF THE UNIVERSITY



HON'BLE SHRI THAA WARCHAND GEHLOT,
The Governor of Karnataka & Chancellor of VTU



Dr. M. C SUDHAKAR
Minister for Higher Education,
Pro – Chancellor of VTU



Dr. VIDYASHANKAR. S
Vice Chancellor
VTU



Dr. B. E. RANGASWAMY
Registrar, VTU



Dr. T. N. SREENIVASA
Registrar (Evaluation), VTU



Dr. D.P. NAGARAJAPPA
Principal UB DTCE, Davanagere



Dr. S. BASAVARAJAPPA
Chairperson and Professor

ABOUT DEPARTMENT OF MECHANICAL ENGINEERING

The Department was established in 1957 and offers undergraduate (Mechanical Engineering), postgraduate (Machine Design), MSc (Research), and PhD programs. It serves as an established research centre under Visvesvaraya Technological University, Belagavi. At present, the department has 13 faculty members with PhD degrees and 4 faculty members with M. Tech degrees (2 of whom are pursuing PhDs). The department has executed a good number of research projects.



In the past three years alone, 30 students have graduated with PhDs and published 120 SCI-indexed research articles, demonstrating the department's strength. Students benefit from training at a well-established skill development centre that features specialized laboratories in Robotics, Mechatronics, Hydraulics and Kinematics, CNC, and PLC Industrial Electronics. The department also have an established research laboratory.

UG Programmes

Durations

Intake

B.E in Mechanical Engineering

4 Years

70

PG Programmes

Durations

Intake

M. Tech in Machine Design

2 Years

25

Ph.D. Programmes and M.Sc. Engineering

Career Opportunities

- Automotive Engineer
- Electric Vehicle Engineer
- Mechanical Design Engineer
- Maintenance Engineer
- Design Analyst



BEST PRACTICES IN THE



DEPARTMENT

MODERN TOOLS FOR TEACHING & LEARNING

ADVISING/MENTORING SYSTEM

LAB INTEGRATED COURSES

PROJECT EXHIBITIONS

CUTTING EDGE RESEARCH

FLEXIBLE CURRICULUM

INDUSTRY ELECTIVES

MULTI-DISCIPLINARY PROJECTS

TRUST AREA RESEARCH GROUP

EXPERIMENTAL AND PARTICIPATIVE LEARNING

OUTCOME BASED EDUCATION (OBE)



**THE TEAM THAT
EMPOWERS YOU**

Dr. S. Basavarajappa
Chairperson and Professor



Dr. Shekarappa B. Mallur
Professor-Emeritus



Dr. Irappa Sogalad
Professor and Dean
(Academic)



Dr. K. Ramesh
Professor



Dr. Syed Ahamed
Professor



Dr. S. B. Prakash
Professor



Dr. Mallikarjuna C
Associate Professor



Dr. R. P. Swamy
Associate Professor



Dr. Sreenivasa C. G.
Associate Professor



Dr. Vijaya Kumar
Associate Professor



Dr. Kishan Naik
Associate Professor



Dr. Satish K. G.
Assistant Professor



Dr. Mohamed Kaleemulla K.
Assistant Professor



Sri. Manjunatha Gowda N.
Assistant Professor



Chetan Kumar M.
Assistant Professor
(Ad-hoc)



Avinash H. G.
Assistant Professor
(Ad-hoc)



Nataraj K. H.
Assistant Professor
(Ad-hoc)



Dr Sachin K O
Assistant Professor
(Ad-hoc)



Ramesh B R
Assistant Professor
(Ad-hoc)

NON-TEACHING STAFF DETAILS



Sri. M Murigesha
Instructor I/C Forman



Sri. K Annappaswamy
Instructor



Sri. B S Ashoka
Instructor



Sri. G Manjunathappa
Instructor



**Sri. T G
Veerabhadrappe**
Assistant Instructor



Sri. B Nagappa
Assistant Instructor



Sri. K M Umapathi
Assistant Instructor



Sri. D N Govindappa
Assistant Instructor



Sri. G R Vijay
Assistant Instructor



ACTIVITIES / CHAPTERS ORGANIZED

Sl. No.	ACTIVITIES
1	Blood Donation Camp was Conducted on 09th March 2023 under the banner Red Cross Society – University BDT College Unit.
2	Eye Checkup Camp was Conducted on 20th July 2023 under the banner Red Cross Society – University BDT College Unit.
3	2 days EDP Organized on Importance of Entrepreneurial Mindset among Students was organized on 2nd and 3rd May 2023, 127 Students Enrolled and Participated.
4	2 days EDP Organized on Startup Companies: Ecosystem for setting up and growth, was organized on 31st May 2024 to 01st June 2024, 127 Students Enrolled and Participated.
5	Memorandum Of Understanding between UBDTCE, Davanagere and CARGILL INDIA Pvt Ltd. Harihar is entered into on the 28th day of March Two Thousand Twenty Four (28/03/2024).
6	Memorandum Of Understanding between UBDTCE, Davanagere and Grasim Industries Ltd. Harihar is entered into on the 28th day of March Two Thousand Twenty Four (28/03/2024).
7	Placement and Skill development Trainings activity for the students of UBDTCE for the academic year 2021-22 by Skill Fact, Bangalore was organized by the Training & Placement Office, University BDT College of Engineering, Davanagere from 17-08-2021 to 23-08-2021. 433 students from all the branches have participated.
8	Placement and Trainings activities for the Mechanical Engineering Students were organized by the Mechanical Engineering Department Coordinator, University BDT College of Engineering, Davanagere. Students from all the Semesters of Mechanical Engineering branch have participated.
9	Under the banner of Mechanical Engineering Forum (MEF) Technical activities, Indoor and Outdoor events along with Social welfare activities were conducted for the year 2021-22.
10	Placement and Skill development Trainings activity for the students of UBDTCE for the academic year 2022-23 by Skill Fact, Bangalore was organized by the Training & Placement Office, University BDT College of Engineering, Davanagere from 13-04-2022 to 19-04-2022. 433 students from all the branches have participated.
11	Placement and Trainings activities for the Mechanical Engineering Students were organized by the Mechanical Engineering Department Coordinator, University BDT College of Engineering, Davanagere. Students from all the Semesters of Mechanical Engineering branch have participated.
12	Under the banner of Mechanical Engineering Forum (MEF) Technical activities, Indoor and Outdoor events along with Social welfare activities were conducted for the year 2022-23.

ACTIVITIES / CHAPTERS ORGANIZED

Sl. No.	ACTIVITIES
13	Placement and Skill development Trainings activity for the students of UBDTCE for the academic year 2023-24 by Skill Fact, Bangalore was organized by the Training & Placement Office, University BDT College of Engineering, Davanagere from 24-06-2023 to 01-07-2023 and 19-08-2023 to 26-08-2023. 313 students from all the branches have participated.
14	Placement and Trainings activities for the Mechanical Engineering Students were organized by the Mechanical Engineering Department Coordinator, University BDT College of Engineering, Davanagere. Students from all the Semesters of Mechanical Engineering branch have participated.
15	Special Seminar organized on “Humidity Sensing Studies on Conducting Polymer Nano Composite” held on 18-07-2024 jointly by the Department of Mechanical and E&I Department.
16	Under the banner of Mechanical Engineering Forum (MEF) Technical activities, Indoor and Outdoor events along with Social welfare activities were conducted for the year 2023-24.
17	Student Orientation Program - Each One Teach One Program On “Automobile Engineering” Organized by the Department of Studies in Mechanical Engineering, University BDT College of Engineering, Davanagere - 577 004 on 13th and 14th December, 2023.
18	Student Induction Program - Organized by the University BDT College of Engineering, Davanagere - 577004 on 1 and 10th December, 2022.
19	Project Proposal Entitle “Operation and Monitoring of Industrial Boiler Parameters from Remote Distance using IOT” Sanctioned by KSCST 44th Series year 2020-21
20	Project Proposal Entitle “Solar Operated Honey Extractor” Sanctioned by KSCST 44th Series year 2020-21
21	Visit by the students along with Faculty members to K K Foundries, Harihar on 26-08-2022.
22	Visit by the students to the Davanagere Sugars Company Limited on 20th Oct 2022, 50 Students Permitted.
23	Visit by the students to the KPCL, Sharavati Project Linganamakki Dam and Power House on 6th July 2014.

STUDENTS PARTICIPATION

Sl. No.	Activities with Details
1	Manjunath BN Secured 3rd Place in Inter college Quiz competition, CADD Center Training Services Davanagere on 6th Dec 2021.
2	Balaji C, Obtained Certificate of appreciation for his performance in 2nd year under Prathibha Puraskar, UBDTCE, Davanagere on 26th Dec 2022.
3	Gagan G, CATC/Inter BN RDC (cultural, BC and Flag area) Competition of NCC on 12-21st Aug 2023.
4	Pooja C, Papyrus- 2024 paper presentation at BIET on 5th Jan 2024.
5	Siddesh B, Papyrus- 2024 paper presentation at BIET on 5th Jan 2024.
6	Siddesh B, participated in IEEE via Id EEE 2K24 National Technical Symposium SIT, Tumkuru on 25th April 2024
7	Siddesh B, participated in Engineering a Wayout, Mysterio 4.0 JNNC, Shimoga on 28-29th May 2024.
8	Siddesh B, participated in Paper Presentation, Mysterio 4.0 JNNC, Shimoga on 28-29th May 2024.
9	Siddesh B, Idea Tank Event JM University SUKALPA State level Technical Fest, Davanagere on 01-02nd July 2024.
10	Siddesh B, Participated in Viksit Bharat at 2047, YuvaSamvad, UBDTCE, Davanagere on 24th Feb 2024.
11	Siddesh B, Participated in Pitch to Solve event Chaitra 2024, securing Second Place on 2024.
12	Balaji C, Obtained Certificate of appreciation for his performance in 3rd year under Prathibha Puraskar, UBDTCE, Davanagere on 23rd Dec 2023.
13	Siddesh B, Attended 2 days EDP on Startup Company/ Ecosystem for settingup and growth at UBDTCE, Davanagere on 31st May and 1st June 2024.
14	Jaggesh A 25th VTU Inter – Colligiate Athletic Meet 2023-24. Held at VTU Regional Center, Mysore on 26-29th June 2024.
15	Ramya Naik Chaitra Drawing Event held at University BDT College on Chaitra' 24 securing First Place.
16	Gagan G has Passed NCC B Certificate Under the Ministry of Defense on 21st May 2024.

Placement Activities

Batch 2019-23

SI NO	Student Name	USN	Company/ Employer
1	JAYDEV G	4UB19ME021	KI Mobility Solutions / SANSERA ENGINEERIGN LTD.,
2	MOHAMMED FAIZAN K M	4UB19ME035	TCS Digital
3	CHETHAN M	4UB20ME401	KI Mobility Solutions, PROMAN INFRASTRUCTURE PVT LTD.
4	BHARATH S N	4UB19ME008	KI Mobility Solutions / SANSERA ENGINEERIGN LTD.,
5	TANUSHREE S A	4UB19ME057	SANSERA ENGINEERING LTD.,
6	SHASHI S	4UB20ME409	KI Mobility Solutions
7	ANIL SHASTRI M	4UB19ME004	KI Mobility Solutions / SANSERA ENGINEERIGN LTD.,
8	HARSHAVARDHANA S S	4UB20ME402	KI Mobility Solutions / SANSERA ENGINEERING LTD., 3.5 LPA
9	UJWAL N PAWAR	4UB19ME060	KI Mobility Solutions, MAINTEC TECHNOLOGIES
10	NAGARAJ B	4UB19ME036	KI Mobility Solutions, JOSH MITHRA
11	KIRAN KUMAR L	4UB19ME027	KI Mobility Solutions, MAINTEC TECHNOLOGIES/ JOSH MITHRA / SANSERA ENGINEERIGN LTD.,
12	LAKSHADEEPU M G	4UB19ME029	JSW ENERGY
13	DIVYA L	4UB19ME014	SANSERA ENGINEERING LTD.,
14	MEGHANA H K	4UB19ME032	TAP ACADEMY
15	GOUS PASHA	4UB20ME413	Q SPIDERS
16	SANTAGOUDA CHITTARAGI	4UB19ME045	KI Mobility Solutions
17	KEERTHI H	4UB19ME026	KI Mobility Solutions / RITTAL PVT LTD,Doddaballapura
18	ESHWARAPPA	4UB19ME015	KI Mobility Solutions
19	VENKATESH G Y	4UB19ME064	KI Mobility Solutions, / Q SPIDERS
20	ARAVIND S	4UB20ME400	KI Mobility Solutions
21	ASHIQ K	4UB19ME006	KI Mobility Solutions
22	CHANDRASHEKAR J	4UB19ME011	INDOMIM

Placement Activities

SI NO	Student Name	USN	Company/ Employer
23	SANDEEP MALAVADE	4UB20ME406	KI Mobility Solutions, MAINTEC TECHNOLOGIES
24	YASHWANTHAKUMARA H C	4UB19ME065	KI Mobility Solutions
25	MANI NAIKA	4UB20ME407	KI Mobility Solutions
26	SHASHANK S P	4UB19ME050	KI Mobility Solutions, JOSH MITHRA
27	HARSHIT KUMAR SINGH	4UB19ME016	MAINTEC TECHNOLOGIES
28	BEVUR MEGHARAJ	4UB19ME007	TCS NQT
29	PAVANKUMAR T S	4UB20ME404	KI Mobility Solutions
30	K GANESH	4UB19ME023	KI Mobility Solutions
31	HUSENABASHA Y GANGUR	4UB19ME019	MAINTEC TECHNOLOGIES
32	SACHIN B N	4UB19ME041	KI Mobility Solutions
33	SACHIN O M	4UB19ME043	KI Mobility Solutions
34	HARISHA B P	4UB20ME412	KI Mobility Solutions
35	SANTHOSH R GAMAD	4UB19ME046	KI Mobility Solutions
36	ABHISHEK K N	4UB19ME001	KI Mobility Solutions
37	AKASH S SHIRALLI	4UB19ME003	KI Mobility Solutions, PROMAN INFRASTRUCTURE PVT LTD.
38	PRUTHVIRAJ V	4UB19ME038	KI Mobility Solutions
39	MANOJA H T	4UB19ME031	KI Mobility Solutions
40	SHANKAR C N	4UB19ME048	KI Mobility Solutions, MAINTEC TECHNOLOGIES INDIMIM
41	SRINIVASA S N	4UB19ME055	Pentagon

Mechanical Department of SWOT Analysis



SWOT is a strategic planning tool used to evaluate the strengths, weaknesses, opportunities, and threats of a Department. It involves specifying the objective of the department and identifying the internal and external factors that are favourable and unfavourable. The strengths and weaknesses usually arise from within department and the opportunities and threats from external sources.

STRENGTHS



- ✦ Institute located at the heart of the city.
- ✦ Well qualified, active, creative and committed faculty.
- ✦ Good at admission entry level.
- ✦ Experience administrative and non-teaching staff.
- ✦ Research grants received
- ✦ VTU recognized Research Centre.
- ✦ High quality research publications in Q rated journals.
- ✦ Faculty with positive interaction skill with students.
- ✦ Students are encouraged beyond their prescribed curriculum by conducting workshop, seminar, quiz, and brainstorming activity.
- ✦ Good interaction and inter-relationship with industries
- ✦ Transparency in the working of the institute
- ✦ Strong Alumni network in training and internships.
- ✦ Job placement many students by the end of final year
- ✦ Modern audio-visual facilities, well-furnished classrooms

WEAKNESS



- ✦ Students from remote area suffer from hostel facilities.
- ✦ Limited financial freedom
- ✦ Less number of full-time Ph.D. students
- ✦ Less hostel facilities

OPPORTUNITIES



- ✦ Avail proper guidance and support from regular principal sir and Chairman.
- ✦ Utilization of available resource / technology
- ✦ Motivational classes
- ✦ Dynamic placement cell
- ✦ Social awareness programme from time to time
- ✦ Culture and other programme to encourage/explore student's creativity
- ✦ Various sports & other activities.

THREATS



- ✦ Stand among other competitive institutions.
- ✦ Challenges to generate interest in students who comes from diverse Background/socio-economic status.
- ✦ Decreasing inclination towards Engineering.
- ✦ Global recession hamper expected placement.
- ✦ Lack of resource and exposure.
- ✦ Rapid technological changes due to fast innovations.
- ✦ Insufficient number of quality students with strong interest in engineering



FORMER & PRESENT RESEARCH STUDENTS FACULTY WISE



**Dr. S. Basavarajappa,
Chairperson and Professor**



Suresh R



B. Lata
Shankar



Manjunatha
S S



Bharath K N



Ragavendra C
R



Divakar M H



Pramod R



Annappa A R



Ekanthappa J
ON GOING



**Dr. Irappa Sogalad,
Professor and Dean (Academic)**



Aravinda Pai



Raghavendra C.R



Hanumantharaya
R



Jhansi Lakshmi
P



Chakrasli C K



Deenashree K N



Rohith Kumar HV



**Dr. Shekarappa B. Mallur,
Professor-Emeritus**



Shankar Naik



Doddaiah S. V.



Sreenivas A R



Mr. Shridhar



**Dr. S. B. Prakash,
Professor**



Ravichandra Koti



Syed Sameer



Marulasiddesh H B



Ganesh T



Ajith B S



Basavarajappa S



**Dr. K. Ramesh,
Professor**



Manjunath C

FORMER & PRESENT RESEARCH STUDENTS FACULTY WISE



Dr. R. P. Swamy, Associate Professor



Shashidhar T



Ramesh D



T R Hemantha Kumar



Raju B R



Arun Kumar M B



Kishan Naik



Ramesh B T



Raghu Chand R



Hemanth Kumar C



Danappa G T



Amrin Taj



Avinash H G, Ongoing Research Students



Chethankumar M, Ongoing Research Students



Dr. Sreenivasa C. G., Associate Professor



Mahadev



Srinivas A, Ongoing Research Students



Mahendra K.C, Ongoing Research Students



Dr. Mallikarjuna C., Associate Professor



Vishwanatha n r,



Ajaykumar k,



Lingaraju s v,



Rajashekhar g s, ONGOING



Dr. Vijaya Kumar, Associate Professor



Vidya sagar shetty



Sandeep Khelge



Kumaraswamy J



Satish kumar S, On-going



Ravi chandra P S, On-going



MD. Murtuza, On going



Dr. Kishan Naik, Associate Professor



Madhavi G



Kiran Kumar



Syed Mustafa Khadri, Ongoing Research Students



Dr. Satish K. G., Assistant Professor



Satish J



Harsha H M



Siva Prakash P



Prashanth S J



Rajesh A M



Mudasar Pasha



Saleemsab Doddamani



Yathish Narayan Rao



Md Kafeel Delvi



**Transforming
Innovative Minds
Into Creators for Sustainable Future**

*We build a Better nation
Through Quality education*

PROJECT EXHIBITION



DEPARTMENT SPECIFIC LABORATORIES

Mechanical engineering stands as one of the broadest and most versatile engineering disciplines, encompassing various fields such as robotics, automotive engineering, aerospace, materials science, and more.

The Department of Studies in Mechanical Engineering is a vibrant hub of teaching-learning process, innovation and research. The department is equipped with modern classrooms, a well-stocked library, and research and development facilities. Its state-of-the-art infrastructure includes CAD and simulation labs, mechanics of materials and metrology labs, and manufacturing technology and robotics labs, machine shops as instructional labs, among others and established research lab in composites, Manufacturing, precision engineering and wear of materials.

The department emphasizes on practical skill development through regular workshops, training programs, and industry collaborations. Its robust research initiatives focus on key areas such as composites, natural composites, energy and environment, materials science and nanotechnology, image processing and manufacturing and design optimization. The department is supported with skill a lab which includes, CNC and 3D printing technology, Robotics laboratory, Mechatronics, PLC and instrumentation.

With a strong commitment to hands-on learning, the department prepares students for successful careers in mechanical engineering. It fosters a community of scholars dedicated to solving complex engineering challenges and creating sustainable solutions for the future.

LABORATORIES & LICENSED SOFTWARES IN THE DEPARTMENT OF MECHANICAL ENGINEERING

- ✦ **Workshop Laboratory.**
- ✦ **Computer Aided Engineering Drawing.**
- ✦ **Material Testing Laboratory.**
- ✦ **Mechanical Measurements & Metrology Laboratory.**
- ✦ **Foundry & Forging Laboratory.**
- ✦ **Machine Shop Laboratory.**
- ✦ **Fluid Mechanics & Machines Laboratory.**
- ✦ **Energy Laboratory.**
- ✦ **Heat Transfer Laboratory.**
- ✦ **Computer Aided Modelling & Analysis Laboratory.**
- ✦ **CIM & Automation Laboratory.**
- ✦ **Design Laboratory.**



**Learn
Lead
Serve**

DEPARTMENT SPECIFIC LABORATORIES

Laboratories and Major equipment's

Sl.No.	Name of the Laboratory	No of students per set up (batch size)	Name of the important equipment
1.	Work shop (I/II sem UG)	15-20 (Fitting & Sheet Metal)	<ol style="list-style-type: none"> 1. Pillar type Drilling Machine 2. Bench Vice 3. Leg Vice 4. Anvil 5. Stakes 6. Surface plate 7. Arc Welding Machine 8. Butt Welding Machine 9. Gas Welding equipment's 10. Bench grinding machine 11. Soldering iron guns
2.	Material Science & Material Testing Lab (III sem UG)	15- 20 (5 per setup)	<ol style="list-style-type: none"> 1. Vicker/Brinell Hardness testing machine 2. Computerised Universal testing machine 3. Impact testing machine 4. Rotating cantilever fatigue machine 5. Torsion testing machine 6. Microscope 7. Rockwell Hardness testing machine 8. Polishing M/c 9. Metallurgical microscope 10. Magnetic Crack Detector 11. Surface roughness Tester 12. Pin on disc wear testing m/c 13. Torsion testing machine 14. Fatigue testing machine
3.	Forging & Foundry Lab (IIIsem UG)	15 – 20 (5 per setup for minor expts & 1 per major expt))	<ol style="list-style-type: none"> 1. Open hearth furnace 2. Sieve shaker 3. Digital weighing Balance 4. Universal sand testing machine 5. Molding boxes 6. Permeability Tester 7. Moisture content tester 8. Sand Moulding equipment & Tools 9. Clay content tester 10. Forging tools
4.	Mechanical Measurements & Metrology Laboratory (IVsem UG)	15 – 20 (5 per setup)	<ol style="list-style-type: none"> 1. Dial Calibration Tester 2. Granite Surface Plate 3. Slip Gauge zero Grade set of 91Nos. 4. Three Wire Unit set of 18Nos. 5. Universal Measuring Instrument 6. Measure Scope with Accessories 1set 7. Profile Projector Model: V-12 Accuracy 1μ, Magnification 10,20& 50X, Nikon Japan make with Accessories

DEPARTMENT SPECIFIC LABORATORIES

			<ul style="list-style-type: none"> 8. Gear Roll Tester Electronic Comparator 9. Sine bar 10. Outside micrometer 0-25mm LC 0.001 11. Sine centre 12. Vernier caliper 0-300mm 13. Gear tooth caliper 14. Dial indicator 0-10mm 15. Dial caliper 0-150mm 16. LVDT Calibration setup with indicator 17. Dead weight pressure gauge
5.	Machine shop Practice (IV sem UG)	15 – 20 (5 per set up- for Milling and Shaping & 1 per setup for Lathe)	<ul style="list-style-type: none"> 1. Lathe machine 2. Universal Milling Machine 3. Cooper Shaping machine 4. Shaping machine 5. Tool and cutter grinder. 6. Bench grinding machine 7. Radial drilling machine 8. Pillar drilling machine 9. Planing machine
6.	Fluid Mechanics and Fluid machinery Lab (V sem UG)	15-20 (5 per setup)	<ul style="list-style-type: none"> 1. 1.Francis Turbine 2. 2.Pelton Turbine 3. 3.Kaplan Turbine 4. 4.R/P Pump 5. 5.C/Pump 6. 6.C/F. Blower 7. Minor loss set up 8. 8.Major loss set up 9. 9.Notch set up 10. 10.Venturimeter & Orifice meter 11. 11.Impact of jet apparatus 12. 12.Wind Tunnel
7.	Energy conversion Lab (IV sem UG)	15 – 20 (5 per setup)	<ul style="list-style-type: none"> 1. Red wood Viscometer No. –1 2. Bomb Calorimeter with all Accessories 3. Say bolt Viscometer 4. Cut sections of 2-4 stroke engines 5. Open cup Flash and fire point Apparatus 6. Closed cup Flash and fire point Apparatus 7. 4-Stroke Diesel Engine with Accessories 8. Multi Cylinder Petrol Engine Test set up 9. Engine Test Up Two Stroke Petrol Engine.
8.	Heat Transfer Lab (VI sem UG)	15- 20 (5 per setup)	<ul style="list-style-type: none"> 1. Transient Heat Conduction 2. Thermal Conductivity of Metal Rod 3. Composite Wall Apparatus 4. Heat Transfer in Natural Convection 5. Heat Transfer in Forced Convection 6. Emissivity of Surface 7. Refrigeration Cycle Test Rig

DEPARTMENT SPECIFIC LABORATORIES

9.	CEA/ CAM Lab (VI sem UG)	15 – 20 (1 per setup)	Hardwires 1. lenava computers 2. LCD Projector 3. HP Laserjet Printer 4. HP scanner 5. 5kv UPS Softwares 1. Capsturn, 2. Capsmill 3. ANSYS11.0 4. FEMAP-Nastran 9.2 5. CATIA-V5,R6 6. SolidEdge-19 7. UG-NX5 8. LS-DYNA 9. ProE-WildFire3.0 10. AutoCad,Invent2008
10.	Dynamics Lab (VIIsem UG)	15 – 20 (5 per setup)	1. Whirling of shaft 2. Motorised gyroscope 3. Static & Dynamic balancing apparatus 4. Universal Governor apparatus 5. Combined dynamic & reciprocating masses 6. 3-Channel strain indicator 7. Tachometer 8. Damped Torsional Pendulum 9. Stress developed in curved beam using strain gauge 10. Circular Polariscopes



MECHANICAL ENGINEERING DEPARTMENT LAB PHOTOS



MECHANICAL ENGINEERING DEPARTMENT LAB PHOTOS



RESEARCH AND DEVELOPMENT

R&D in Mechanical Department: Driving innovation, advancing knowledge, and developing cutting-edge technologies to address real-world challenges. Collaborating with industry, academics, and government to create sustainable solutions in energy, materials, manufacturing, and robotics

1. High temperature Pin on disc wear testing
2. Two Body Abrasion Tester
3. Three Body Abrasion Tester
4. Body Abrasion Tester
5. Metallurgical microscope with image Analyzer
6. Surface Roughness Tester
7. Hydraulic Hot Press
8. Computerized Universal Testing Machine
9. Tensile Tester
10. Double Headed Sheet and Rolling Machine.
11. Precision weight balance machine



Abrasion Tester



Pin on disc wear testing



Milling Machine



Hydraulic Press machine



Universal Testing Machine

PROJECT LABORATORY FACILITIES & UTILIZATION

Main purpose of R& D / Project Lab is to provide environment to student for developing their projects. Final year students should undertake a project work to fulfil the requirements of the University, for award of the degree. The department provides all necessary support to the students in this connection.

Project Laboratory Facilities and Utilization

Sl. No.	Laboratories	Facilities	Utilization
1	Central Workshop	MACHINE TOOLS: Lathe, Milling machine, Drilling machine, Shaping machine, Welding, Sheet metal work	Projects requiring Fabrication work are done in workshop.
2	Metrology and Measurements Lab	Micrometer, Pitch gauge, Tool maker's Microscope, Vernier caliper	Precision measurements necessary for the projects are carried out
3	CAD CAM Lab	Software's Ansys 11 v, Solid edge-20, Mat lab -9 Computer systems	For modelling and analysis
4	Material Testing	Precision computerized UTM	Projects related to Composite materials and material testing
5	Design Lab	Wear testing machine	Projects related to Composite materials and wear testing
6	Foundry & Forging Lab	Bottom pour Electric furnace, Hydraulic hot press	Projects related to stir casting and hot pressing

COURSE MENU

I / II SEMESTER

29052023/V10 Final Scheme for ME/IPE/AE/AU/CH/ST/TX/AG/AM/MS/MR/MM/MT/PC/RA/RI

Visvesvaraya Technological University, Belagavi Scheme of Teaching and Examinations-2022 Outcome-Based Education (OBE) and Choice Based Credit System (CBCS) (Effective from the academic year 2022-23)													
I Semester (Mechanical Engineering Stream)					(For Physics Group)								
Sl. No	Course and Course Code		Course Title	TD/PSB	Teaching Hours/Week				Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	SDA	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	*ASC(IC)	BMATM101	Mathematics I for Mechanical Engg Stream	Maths	2	2	2	0	03	50	50	100	04
2	#ASC(IC)	BPHYM102	Applied Physics for ME Stream	PHY	2	2	2	0	03	50	50	100	04
3	ESC	BEMEM103	Elements of Mechanical Engineering	Mechanical	2	2	0	0	03	50	50	100	03
4	ESC-I	BESCK104x	Engineering Science Course-I	Respective Engg Dept.	3	0	0	0	03	50	50	100	03
5	ETC-I	BETCK105x	Emerging Technology Course-I	Any Dept	3	0	0	0	03	50	50	100	03
	PLC-I	BPLCK105x	Programming language Course-I		2	0	2	0					
6	AEC	BENCK106	Communicative English	Humanities	1	0	0	0	01	50	50	100	01
		BPWSK106	Professional Writing Skills in English										
7	HSMC	BKSKK107/ BKBBK107	Sanskritika Kannada/ Balake Kannada	Humanities	1	0	0	0	01	50	50	100	01
		BICOK107	Indian Constitution										
8	AEC/SDC	BIDTK158	Innovation and Design Thinking	Any Dept	1	0	0	0	01	50	50	100	01
		BSPHK158	Scientific Foundations of Health										
TOTAL										400	400	800	20

29052023/V10 Final Scheme for ME/IPE/AE/AU/CH/ST/TX/AG/AM/MS/MR/MM/MT/PC/RA/RI

<p>SDA-Skill Development Activities, TD/PSB- Teaching Department / Paper Setting Board, ASC-Applied Science Course, ESC- Engineering Science Courses, ETC- Emerging Technology Course, AEC- Ability Enhancement Course, HSMC-Humanity and Social Science and management Course, SDC- Skill Development Course, CIE-Continuous Internal Evaluation, SEE- Semester End Examination, IC - Integrated Course (Theory Course Integrated with Practical Course)</p>	
<p>Credit Definition: 1-hour Lecture (L) per week=1Credit 2-hours Tutorial(T) per week=1Credit 2-hours Practical / Drawing (P) per week=1Credit 2-hous Skill Development Actives (SDA) per week = 1 Credit</p>	<p>04-Credits courses are to be designed for 50 hours of Teaching-Learning Session 04-Credits (IC) are to be designed for 40 hours' theory and 12-14 hours of practical sessions 03-Credits courses are to be designed for 40 hours of Teaching-Learning Session 02- Credits courses are to be designed for 25 hours of Teaching-Learning Session 01-Credit courses are to be designed for 12-15 hours of Teaching-Learning sessions</p>
<p>Student's Induction Program: Motivating (Inspiring) Activities under the Induction program - The main aim of the induction program is to provide newly admitted students a broad understanding of society, relationships, and values. Along with the knowledge and skill of his/her study, students' character needs to be nurtured as an essential quality by which he/she would understand and fulfill the responsibility as an engineer. The following activities are to be covered in 21 days. Physical Activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent People, Visits to Local areas, Familiarization with Department/Branch and Innovation, etc. For details, refer the ANNEXURE-I of Induction Programs notification of the University published at the beginning of the 1st semester.</p>	
<p>AICTE Activity Points to be earned by students admitted to BE/ B.Tech., / B. Plan day college program (For more details refer to Chapter 6, AICTE Activity Point Program, Model Internship Guidelines): Over and above the academic grades, every regular student admitted to the 4 years Degree program and every student entering 4 years Degree programs through lateral entry, shall earn 100 and 75 Activity Points respectively for the award of degree through AICTE Activity Point Program. Students transferred from other Universities to the fifth semester are required to earn 50 Activity Points from the year of entry to VTU. The Activity Points earned shall be reflected on the student's eighth semester Grade Card. The activities can be spread over the years, any time during the semester weekends, and holidays, as per the liking and convenience of the student from the year of entry to the program. However, the minimum hours' requirement should be fulfilled. Activity Points (non-credit) do not affect SGPA/CGPA and shall not be considered for vertical progression. In case students fail to earn the prescribed activity Points, an Eighth Semester Grade Card shall be issued only after earning the required activity points. Students shall be admitted for the award of the degree only after the release of the Eighth semester Grade Card.</p>	
<p>*. BMATM101 Shall have the 03 hours of theory examination(SEE), however, practical sessions question shall be included in the theory question papers. ** The mathematics subject should be taught by a single faculty member per division, with no sharing of the course(subject)module-wise by different faculty members. #- BPHYM102 SEE shall have the 03 hours of theory examination and 02-03 hours of practical examination ESC or ETC of 03 credits Courses shall have only a theory component (L:T:P:S=3:0:0:0) or if the nature the of course required practical learning syllabus shall be designed as an Integrated course (L:T:P:S= 2:0:2:0).All 01 Credit- courses shall have the SEE of 01 hours duration and the pattern of the question paper shall be MCQ</p>	

COURSE MENU

29052023/V10 Final Scheme for ME/IPE/AE/AU/CH/ST/TX/AG/AM/MS/MR/MM/MT/PC/RA/RI

(ESC-I) Engineering Science Courses-I					(ETC-I) Emerging Technology Courses-I				
Code	Title	L	T	P	Code	Title	L	T	P
BESCK104A	Introduction to Civil Engineering	3	0	0	BETCK105A	Smart Materials and Systems	3	0	0
BESCK104B	Introduction to Electrical Engineering	3	0	0	BETCK105B	Green Buildings	3	0	0
BESCK104C	Introduction to Electronics Communication	3	0	0	BETCK105C	Introduction to Nano Technology	3	0	0
BESCK104D	Introduction to Mechanical Engineering	3	0	0	BETCK105D	Introduction to Sustainable Engineering	3	0	0
BSC1K104E	Introduction to C Programming	2	0	2	BETCK105E	Renewable Energy Sources	3	0	0
					BETCK105F	Waste Management	3	0	0
					BETCK105G	Emerging Applications of Biosensors	3	0	0
					BETCK105H	Introduction to Internet of Things (IOT)	3	0	0
					BETCK105I	Introduction to Cyber Security	3	0	0
					BETCK105J	Introduction to Embedded System	3	0	0
(PLC-I) Programming Language Courses-I									
Code	Title	L	T	P					
BPLCK105A	Introduction to Web Programming	2	0	2					
BPLCK105B	Introduction to Python Programming	2	0	2					
BPLCK105C	Basics to JAVA programming	2	0	2					
BPLCK105D	Introduction to C++ Programming	2	0	2					

The course BSC1K104E, Introduction to C Programming, and all courses under PLC and ETC groups can be taught by faculty of ANY DEPARTMENT

- The student has to select one course from the ESC-I group.
- MES stream Students shall opt for any one of the courses from the ESC-I group except, 22ESC144-Introduction to Mechanical Engineering
- The students have to opt for the courses from ESC group without repeating the course in either 1st or 2nd semester
- The students must select one course from either ETC-I or PLC-I group.
- If students study the subject from ETC-I in 1st semester he/she has to select the course from PLC-II in the 2nd semester and vice-versa

COURSE MENU

I/II SEMESTER

29052023/V10 Final Scheme for ME/IPE/AE/AU/CH/ST/TX/AG/AM/MS/MR/MM/MT/PC/RA/RI

Visvesvaraya Technological University, Belagavi Scheme of Teaching and Examinations-2022 Outcome-Based Education(OBE)and Choice Based Credit System(CBCS) (Effective from the academic year 2022-23)													
II Semester(Mechanical Engineering Stream)					(For the students who attend the 1 st semester under Physics Group)								
Sl. No	Course and Course Code		Course Title	TD/PSB	Teaching Hours/Week				Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	SDA	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	*ASC(IC)	BMATM201	Mathematics-II for Mechanical Engg Stream	Maths	2	2	2	0	03	50	50	100	04
2	#ASC(IC)	BCHEM202	Applied Chemistry for ME Stream	Chemistry	2	2	2	0	03	50	50	100	04
3	ESC	BCEDK203	Computer-Aided Engineering Drawing	Civil/Mech Engg dept	2	0	2	0	03	50	50	100	03
4	ESC-II	BESCK204x	Engineering Science Course-II	Respective Engg Dept	3	0	0	0	03	50	50	100	03
5	PLC-II	BETCK205x	Programming Language Course-II	Any Dept	3	0	0	0	03	50	50	100	03
	ETC-II	BETCK205x	Emerging Technology Course-II		3	0	0	0	03				
6	AEC	BPWSK206	Professional Writing Skills in English	Humanities	1	0	0	0	01	50	50	100	01
		BENCK206	Communicative English										
7	HSMS	BICOK207	Indian Constitution	Humanities	1	0	0	0	01	50	50	100	01
		OR											
		BKSKK207 BKBK207	Sanskritika Kannada/ Balake Kannada										
8	AEC/SEC	BSFHK258	Scientific Foundations for Health	Any Dept	1	0	0	0	01	50	50	100	01
		OR											
		BIDTK258	Innovation and Design Thinking										
TOTAL										400	400	800	20

29052023/V10 Final Scheme for ME/IPE/AE/AU/CH/ST/TX/AG/AM/MS/MR/MM/MT/PC/RA/RI

SDA-Skill Development Activities, TD/PSB- Teaching Department / Paper Setting Board, ASC-Applied Science Course, ESC- Engineering Science Courses, ETC- Emerging Technology Course, AEC- Ability Enhancement Course, HSMS-Humanity and Social Science and management Course, SDC- Skill Development Course, CIE -Continuous Internal Evaluation, SEE- Semester End Examination, IC - Integrated Course (Theory Course Integrated with Practical Course)

*- BMATM201 Shall have the 03 hours of theory examination(SEE), however, practical sessions question shall be included in the theory question papers. ** The mathematics subject should be taught by a single faculty member per division, with no sharing of the course(subject)module-wise by different faculty members.

#- BCHEM202- SEE shall have the 03 hours of theory examination and 02-03 hours of practical examination

ESC or ETC of 03 credits Courses shall have only a theory component (L:T:P:S=3:0:0:0) or if the nature the of course required practical learning syllabus shall be designed as an Integrated course (L:T:P:S= 2:0:2:0)

All 01 Credit- courses shall have the SEE of 01 hours duration and the pattern of the question paper shall be MCQ

(ESC-II) Engineering Science Courses-II					(ETC-II) Emerging Technology Courses-II				
Code	Title	L	T	P	Code	Title	L	T	P
BESCK204A	Introduction to Civil Engineering	3	0	0	BETCK205A	Smart materials and Systems	3	0	0
BESCK204B	Introduction to Electrical Engineering	3	0	0	BETCK205B	Green Buildings	3	0	0
BESCK204C	Introduction to Electronics Communication	3	0	0	BETCK205C	Introduction to Nano Technology	3	0	0
BESCK204D	Introduction to Mechanical Engineering	3	0	0	BETCK205D	Introduction to Sustainable Engineering	3	0	0
BESCK204E	Introduction to C Programming	2	0	2	BETCK205E	Renewable Energy Sources	3	0	0
					BETCK205F	Waste Management	3	0	0
					BETCK205G	Emerging Applications of Biosensors	3	0	0
					BETCK205H	Introduction to Internet of Things(IoT)	3	0	0
					BETCK205I	Introduction to Cyber Security	3	0	0
(PLC-II) Programming Language Courses-II					BETCK205J	Introduction to Embedded System	3	0	0
Code	Title	L	T	P					
BPLCK205A	Introduction to Web Programming	2	0	2					
BPLCK205B	Introduction to Python Programming	2	0	2					
BPLCK205C	Basics of JAVA programming	2	0	2					
BPLCK205D	Introduction to C++ Programming	2	0	2					

The course BESCK205E, Introduction to C Programming, and all courses under PLC and ETC groups can be taught by faculty of ANY DEPARTMENT

- The student has to select one course from the ESC-II group.
- Mechanical Engineering stream Students shall opt for any one of the courses from the ESC-II group except, BESCK204D -Introduction to Mechanical Engineering
- The students have to opt for the courses from ESC group without repeating the course in either 1st or 2nd semester
- The students must select one course from either ETC-II or PLC-II group.
- If students study the subject from ETC-I in 1st semester he/she has to select the course from PLC-II in the 2nd semester and vice-versa

COURSE MENU

III SEMESTER

VIVSVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI													
B.E. in Mechanical Engineering													
Scheme of Teaching and Examinations 2022													
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)													
(Effective from the academic year 2023-24)													
III SEMESTER													
Sl. No	Course	Course Code	Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination			Credits	
					Theory Lecture	Tutorial	Practical/ Drawing	SDA	Duration in hours	CIE Marks	SEE Marks		Total Marks
					L	T	P	S					
1	PCC	BME301	Mechanics of Materials	TD: ME PSB: ME	2	2	0		03	50	50	100	3
2	IPCC	BME302	Manufacturing Process	TD: ME PSB: ME	3	0	2		03	50	50	100	4
3	IPCC	BME303	Material Science and Engineering	TD: ME PSB: ME	3	0	2		03	50	50	100	4
4	PCC	BME304	Basic Thermodynamics	TD: ME PSB: ME	2	2	0		03	50	50	100	3
5	PCCL	BMEL305	Introduction to Modelling and Design for Manufacturing	TD: ME PSB: ME	0	0	2		03	50	50	100	1
6	ESC	BME306x	ESC/ETC/PLC	TD: Respective Dept. PSB: Respective Dept.	3	0	0		03	50	50	100	3
7	UHV	BSCK307	Social Connect and Responsibility	Any Department	0	0	2		01	100	---	100	1
8	AEC/ SEC	BME358x	Ability Enhancement Course/Skill Enhancement Course - III		if the course is a Theory				01	50	50	100	1
					1	0	0						
					if a course is a laboratory				02				
9	MC	BNSK359	National Service Scheme (NSS)	NSS coordinator									
		BPEK359	Physical Education (PE) (Sports and Athletics)	Physical Education Director	0	0	2			100	---	100	0
		BYOK359	Yoga	Yoga Teacher									
Total										550	350	900	20

PCC: Professional Core Course, **PCCL:** Professional Core Course laboratory, **UHV:** Universal Human Value Course, **MC:** Mandatory Course (Non-credit), **AEC:** Ability Enhancement Course, **SEC:** Skill Enhancement Course, **L:** Lecture, **T:** Tutorial, **P:** Practical **S= SDA:** Skill Development Activity, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation. **K:** This letter in the course code indicates common to all the stream of engineering. **ESC:** Engineering Science Course, **ETC:** Emerging Technology Course, **PLC:** Programming Language Course

Engineering Science Course (ESC/ETC/PLC)[L-T-P::3-0-0]

BME306A	Electric and Hybrid Vehicle Technology	BME306C	Internet of Things (IoT)
BME306B	Smart Materials & Systems	BME306D	Waste handling and Management

Ability Enhancement Course – III

BME358A	Advanced Python Programming [0-0-2]	BME358C	Spreadsheet for Engineers [0-0-2]
BME358B	Introduction to Virtual Reality [0-2-0]	BME358D	Tools in Scientific Computing [0-0-2]

Professional Core Course (IPCC): Refers to Professional Core Course Theory Integrated with practical's of the same course. Credit for IPCC can be 04 and its Teaching-Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by only CIE (no SEE). However, questions from the practical part of IPCC shall be included in the SEE question paper. For more details, the regulation governing the Degree of Bachelor of Engineering /Technology (B.E./B.Tech.) 2022-23 may please be referred.

National Service Scheme /Physical Education/Yoga: All students have to register for any one of the courses namely National Service Scheme (NSS), Physical Education (PE)(Sports and Athletics), and Yoga(YOG) with the concerned coordinator of the course during the first week of III semesters. Activities shall be carried out between III semester to the VI semester (for 4 semesters). Successful completion of the registered course and requisite CIE score is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the NSS, PE, and Yoga activities. These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the course is mandatory for the award of degree.

COURSE MENU

IV SEMESTER

VARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI													
B.E. in Mechanical Engineering													
Scheme of Teaching and Examinations 2022													
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)													
(Effective from the academic year 2023-24)													
IV SEMESTER													
Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination			Credits	
					Theory Lecture	Tutorial	Practical/ Drawing	Self Study	Duration in hours	CIE Marks	SEE Marks		Total Marks
	L	T	P	S									
1	PCC	BME401	Applied Thermodynamics	TD: ME PSB:ME	2	2	0		03	50	50	100	3
2	IPCC	BME402	Machining Science & Metrology	TD: ME PSB:ME	3	0	2		03	50	50	100	4
3	IPCC	BME403	Fluid Mechanics	TD: ME PSB:ME	3	0	2		03	50	50	100	4
4	PCCL	BME404	Mechanical Measurements and Metrology lab	TD: ME PSB:ME	0	0	2		03	50	50	100	1
5	ESC	BME405x	ESC/ETC/PLC	TD: Respective Dept. PSB: Respective Dept.	3	0	0		03	50	50	100	3
6	AEC/ SEC	BME456x	Ability Enhancement Course/Skill Enhancement Course- IV	TD and PSB: Concerned department	If the course is Theory				01	50	50	100	1
					1	0	0						
					If the course is a lab				02				
0	0	2											
4	BSC	BBOK407	Biology For Engineers	TD / PSB: BT, CHE,	3	0	0		03	50	50	100	3
7	UHV	BUHK408	Universal human values course	Any Department	1	0	0		01	50	50	100	1
9	MC	BNSK459	National Service Scheme (NSS)	NSS coordinator									
		BPEK459	Physical Education (PE) (Sports and Athletics)	Physical Education Director	0	0	2			100	---	100	0
		BYOK459	Yoga	Yoga Teacher									
Total									500	400	900	20	

PCC: Professional Core Course, PCCL: Professional Core Course laboratory, UHV: Universal Human Value Course, MC: Mandatory Course (Non-credit), AEC: Ability

Enhancement Course, SEC: Skill Enhancement Course, L: Lecture, T: Tutorial, P: Practical S= SDA: Skill Development Activity, CIE: Continuous Internal Evaluation, SEE: Semester End Evaluation. K: This letter in the course code indicates common to all the stream of engineering.			
Engineering Science Course (ESC/ETC/PLC) [L-T-P::3-0-0]			
BME405A	Non Traditional Machining	BME405C	Micro Electro Mechanical Systems
BME405B	Environmental Studies	BME405D	Robotics and Automation
Ability Enhancement Course / Skill Enhancement Course - IV			
BME456A	Introduction to AI & ML [0-0-2]	BME456C	Introduction to Data Analytics [0-0-2]
BME456B	Digital Marketing [0-2-0]	BME456D	Introduction to Programming in C++ [0-0-2]
<p>Professional Core Course (IPCC): Refers to Professional Core Course Theory Integrated with practical of the same course. Credit for IPCC can be 04 and its Teaching-Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by only CIE (no SEE). However, questions from the practical part of IPCC shall be included in the SEE question paper. For more details, the regulation governing the Degree of Bachelor of Engineering /Technology (B.E./B.Tech.) 2022-23.</p> <p>National Service Scheme /Physical Education/Yoga: All students have to register for any one of the courses namely National Service Scheme (NSS), Physical Education (PE)(Sports and Athletics), and Yoga(YOG) with the concerned coordinator of the course during the first week of III semesters. Activities shall be carried out between III semester to the VI semester (for 4 semesters). Successful completion of the registered course and requisite CIE score is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the NSS, PE, and Yoga activities. These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses is mandatory for the award of degree.</p>			

COURSE MENU

V SEMESTER

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
B.E. in Mechanical Engineering
Scheme of Teaching and Examinations 2022
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2023-24)

V SEMESTER													
Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination			Credits	
					Theory Lecture	Tutorial	Practical/ Drawing	Self-Study	Duration in hours	CIE Marks	SEE Marks		Total Marks
					L	T	P	S					
1	HSMS	BME501	Industrial Management & Entrepreneurship	TD: ME PSB:ME	3	0	0		03	50	50	100	3
2	IPCC	BME502	Turbo machines	TD: ME PSB:ME	2	2	2		03	50	50	100	4
3	PCC	BME503	Theory of Machines	TD: ME PSB:ME	4	0	0		03	50	50	100	4
4	PCCL	BME504L	CNC Programming and 3-D Printing lab	TD: ME PSB:ME	0	0	2		03	50	50	100	1
5	PEC	BME515x	Professional Elective - I	TD: ME PSB:ME	3	0	0		03	50	50	100	3
6	PROJ	BME586	Mini Project	TD: ME PSB:ME	0	0	4		03	100		100	2
7	AEC	BRMK557	Research Methodology and IPR	Any Department	2	2	0		03	50	50	100	3
8	MC	BESK508	Environmental Studies	TD: CV/Env/Chem PSB:CV	2	0	0		02	50	50	100	2
9	MC	BNSK559	National Service Scheme (NSS)	NSS coordinator	0	0	2			100		100	0
		BPEK559	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		BYOK559	Yoga	Yoga Teacher									
Total									500	300	800	22	
Professional Elective Course													
BME515A	Mechatronics			BME515C	Supply chain management & Introduction to SAP								
BME515B	Automation in manufacturing			BME515D	Energy Engineering								

PCC: Professional Core Course, PCCL: Professional Core Course laboratory, UHV: Universal Human Value Course, MC: Mandatory Course (Non-credit), AEC: Ability

Enhancement Course, SEC: Skill Enhancement Course, L: Lecture, T: Tutorial, P: Practical S= SDA: Skill Development Activity, CIE: Continuous Internal Evaluation, SEE: Semester End Evaluation. K : The letter in the course code indicates common to all the stream of engineering. PROJ: Project /Mini Project. PEC: Professional Elective Course

Professional Core Course (IPCC): Refers to Professional Core Course Theory Integrated with practical of the same course. Credit for IPCC can be 04 and its Teaching-Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by only CIE (no SEE). However, questions from the practical part of IPCC shall be included in the SEE question paper. For more details, the regulation governing the Degree of Bachelor of Engineering /Technology (B.E./B.Tech.) 2022-23

National Service Scheme /Physical Education/Yoga: All students have to register for any one of the courses namely National Service Scheme (NSS), Physical Education (PE)(Sports and Athletics), and Yoga(YOG) with the concerned coordinator of the course during the first week of III semesters. Activities shall be carried out between III semester to the VI semester (for 4 semesters). Successful completion of the registered course and requisite CIE score is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the NSS, PE, and Yoga activities. These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the course is mandatory for the award of degree.

Mini-project work: Mini Project is a laboratory-oriented/hands on course that will provide a platform to students to enhance their practical knowledge and skills by the development of small systems/applications etc. Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary Mini- project can be assigned to an individual student or to a group having not more than 4 students.

CIE procedure for Mini-project:

(i) **Single discipline:** The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two faculty members of the Department, one of them being the Guide. The CIE marks awarded for the Mini-project work shall be based on the evaluation of the project report, project presentation skill, and question and answer session in the ratio of 50:25:25. The marks awarded for the project report shall be the same for all the batches mates.

(ii) **Interdisciplinary:** Continuous Internal Evaluation shall be group-wise at the college level with the participation of all the guides of the project.

The CIE marks awarded for the Mini-project, shall be based on the evaluation of the project report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

No SEE component for Mini-Project.

Professional Elective Courses (PEC): A professional elective (PEC) course is intended to enhance the depth and breadth of educational experience in the Engineering and Technology curriculum. Multidisciplinary courses that are added supplement the latest trend and advanced technology in the selected stream of engineering. Each group will provide an option to select one course. The minimum number of students' strengths for offering a professional elective is 10. However, this conditional shall not be applicable to cases where the admission to the program is less than 10.

COURSE MENU

VI SEMESTER

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI													
B.E. in Mechanical Engineering													
scheme of Teaching and Examinations 2022													
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)													
(Effective from the academic year 2023-24)													
VI SEMESTER													
Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours/Week				Examination			Credits	
					Theory Lecture	Tutorial	Practical/ Drawing	Self-Study	Duration in hours	CIE Marks	SEE Marks		Total Marks
					L	T	P	S					
1	IPCC	BME601	Heat Transfer	TD: ME PSB: ME	2	2	2		03	50	50	100	4
2	PCC	BME602	Machine Design	TD: ME PSB: ME	3	2	0		03	50	50	100	4
3	PEC	BME613x	Professional Elective - II	TD: ME PSB: ME	3	0	0		03	50	50	100	3
4	OEC	BME654x	Open Elective -I	TD: ME PSB: ME	3	0	0		03	50	50	100	3
5	PROJ	BME685	Major Project Phase - I	TD: ME PSB: ME	0	0	4		03	100	--	100	2
6	PCCL	BME606L	Design lab	TD: ME PSB: ME	0	0	2		03	50	50	100	1
7	AEC/SDC	BME657x	Ability Enhancement Course/Skill Development Course V		If the course is offered as a Theory				01	50	50	100	1
					1	0	0						
					If course is offered as a practical								
8	MC	BNSK658	National Service Scheme (NSS)	NSS coordinator	0	0	2		100	--	100	0	
		BPEK658	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		BYOK658	Yoga	Yoga Teacher									
9	IKS	BIKS609	Indian Knowledge System		1	0	0		01	100	0	100	0
Total									500	300	800	18	
Professional Elective Course													
BME613A	Total Quality Management			BME613C	MEMS and Microsystem Technology								

BME613B	Refrigeration and Air Conditioning			BME613D	Design for Manufacturing and Assembly								
Open Elective Course													
BME654A	Project Management			BME654C	Introduction to Mechatronics								
BME654B	Renewable Energy Power plants			BME654D	Modern Mobility								
Ability Enhancement Course / Skill Enhancement Course-V													
BME657A	Basics of Matlab [0-0-2]			BME657C	Simulation and Analysis using Ansys workbench [0-0-2]								
BME657B	Fundamental of Virtual Reality ARP Development			BME657D	Introduction Augmented Reality								
<p>PCC: Professional Core Course, PCCL: Professional Core Course laboratory, UHV: Universal Human Value Course, MC: Mandatory Course (Non-credit), AEC: Ability Enhancement Course, SEC: Skill Enhancement Course, L: Lecture, T: Tutorial, P: Practical S= SDA: Skill Development Activity, CIE: Continuous Internal Evaluation, SEE: Semester End Evaluation. K : The letter in the course code indicates common to all the stream of engineering. PROJ: Project /Mini Project. PEC: Professional Elective Course. PROJ: Project Phase -I, OEC: Open Elective Course</p> <p>Professional Core Course (IPCC): Refers to Professional Core Course Theory Integrated with practical of the same course. Credit for IPCC can be 04 and its Teaching-Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by only CIE (no SEE). However, questions from the practical part of IPCC shall be included in the SEE question paper. For more details, the regulation governing the Degree of Bachelor of Engineering /Technology (B.E./B.Tech.) 2022-23</p> <p>National Service Scheme /Physical Education/Yoga: All students have to register for any one of the courses namely National Service Scheme (NSS), Physical Education (PE)(Sports and Athletics), and Yoga(YOG) with the concerned coordinator of the course during the first week of III semesters. Activities shall be carried out between III semester to the VI semester (for 4 semesters). Successful completion of the registered course and requisite CIE score is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the NSS, PE, and Yoga activities. These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the course is mandatory for the award of degree.</p> <p>Professional Elective Courses (PEC): A professional elective (PEC) course is intended to enhance the depth and breadth of educational experience in the Engineering and Technology curriculum. Multidisciplinary courses that are added supplement the latest trend and advanced technology in the selected stream of engineering. Each group will provide an option to select one course. The minimum number of students' strengths for offering professional electives is 10. However, this conditional shall not be applicable to cases where the admission to the program is less than 10.</p> <p>Open Elective Courses: Students belonging to a particular stream of Engineering and Technology are not entitled to the open electives offered by their parent Department. However, they can opt for an elective offered by other Departments, provided they satisfy the prerequisite condition if any. Registration to open electives shall be documented under the guidance of the Program Coordinator/ Advisor/Mentor. The minimum numbers of students' strength for offering Open Elective Course is 10. However, this condition shall not be applicable to class where the admission to the program is less than 10.</p> <p>Project Phase-I : Students have to discuss with the mentor /guide and with their help he/she has to complete the literature survey and prepare the report and finally define the problem statement for the project work.</p>													

COURSE MENU

VII SEMESTER

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
 B.E. in Mechanical Engineering
 Scheme of Teaching and Examinations 2022
 Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
 (Effective from the academic year 2023-24)

Scheme A- VII SEMESTER (Swappable VII and VIII SEMESTER)

Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination			Credits	
					Theory Lecture	Tutorial	Practical/ Drawing	Self-Study	Duration in hours	OE Marks	SEE Marks		Total Marks
1	IPCC	BME701	Finite Element Methods	TD: ME PSB:ME	3	0	2		03	50	50	100	4
2	IPCC	BME702	Hydraulics and Pneumatics	TD: ME PSB:ME	3	0	2		03	50	50	100	4
3	PCC	BME703	Control Engineering	TD: ME PSB:ME	4	0	0		03	50	50	100	4
4	PEC	BME714x	Professional Elective-III	TD: ME PSB:ME	3	0	0		03	50	50	100	3
5	OEC	BME755x	Open Elective- II	TD: ME PSB:ME	3	0	0		01	50	50	100	3
6	PROJ	BME786	Major Project Phase-II		0	0	12		03	100	100	200	6
										400	300	700	24

Professional Elective Course

BME714A	Additive manufacturing	BME714C	IC Engines
BME714B	Product Design and Management	BME714D	Cryogenics

Open Elective Course

BME755A	Introduction to Non-Traditional machining	BME755C	Operations Research
BME755B	Basics of Hydraulics and Pneumatics	BME755D	Non-Conventional Energy Resources

PCC: Professional Core Course, PCCL: Professional Core Course laboratory, PEC: Professional Elective Course, OEC: Open Elective Course PR: Project Work, L: Lecture, T: Tutorial, P: Practical S= SDA: Skill Development Activity, CIE: Continuous Internal Evaluation, SEE: Semester End Evaluation. TD- Teaching Department, PSB: Paper Setting department, OEC: Open Elective Course, PEC: Professional Elective Course. PROJ: Project work

Note: VII and VIII semesters of IV years of the program

(1) Institutions can swap the VII and VIII Semester Schemes of Teaching and Examinations to accommodate research internships/ industry internships after the VI

semester.

(2) Credits earned for the courses of VII and VIII Semester Scheme of Teaching and Examinations shall be counted against the corresponding semesters whether the VII or VIII semesters is completed during the beginning of the IV year or the later part of IV years of the program.

Professional Elective Courses (PEC): A professional elective (PEC) course is intended to enhance the depth and breadth of educational experience in the Engineering and Technology curriculum. Multidisciplinary courses that are added supplement the latest trend and advanced technology in the selected stream of engineering. Each group will provide an option to select one course. The minimum number of students' strengths for offering professional electives is 10. However, this conditional shall not be applicable to cases where the admission to the program is less than 10.

Open Elective Courses:

Students belonging to a particular stream of Engineering and Technology are not entitled to the open electives offered by their parent Department. However, they can opt for an elective offered by other Departments, provided they satisfy the prerequisite condition if any. Registration to open electives shall be documented under the guidance of the Program Coordinator/ Advisor/Mentor. The minimum numbers of students' strength for offering Open Elective Course is 10. However, this condition shall not be applicable to class where the admission to the program is less than 10.

PROJECT WORK (21MEP75): The objective of the Project work is

- (i) To encourage independent learning and the innovative attitude of the students.
- (ii) To develop interactive attitude, communication skills, organization, time management, and presentation skills.
- (iii) To impart flexibility and adaptability.
- (iv) To inspire team working.
- (v) To expand intellectual capacity, credibility, judgment and intuition.
- (vi) To adhere to punctuality, setting and meeting deadlines.
- (vii) To install responsibilities to oneself and others.
- (viii) To train students to present the topic of project work in a seminar without any fear, face the audience confidently, enhance communication skills, involve in group discussion to present and exchange ideas.

CIE procedure for Project Work:

(1) **Single discipline:** The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the project work, shall be based on the evaluation of the project work Report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

(2) **Interdisciplinary:** Continuous Internal Evaluation shall be group-wise at the college level with the participation of all guides of the college. Participation of external guide/s, if any, is desirable. The CIE marks awarded for the project work, shall be based on the evaluation of project work Report, project presentation skill, and question and answer session in the ratio 50:25:25. The marks awarded for the project report shall be the same for all the batch mates.

COURSE MENU

VIII SEMESTER

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
 B.E. in Mechanical Engineering
 Scheme of Teaching and Examinations 2022
 Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
 (Effective from the academic year 2023-24)

Scheme A- VIII SEMESTER (Swappable VII and VIII SEMESTER)

Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination			Credits	
					Theory Lecture	Tutorial	Practical/ Drawing	Self -Study	Duration in hours	CIE Marks	SEE Marks		Total Marks
					L	T	P	S					
1	PEC	BME801x	Professional Elective -IV (Online Courses)	TD: ME PSB:ME	3	0	0		03	50	50	100	3
2	OEC	BME802x	Open Elective - III (Online Courses)	TD: ME PSB:ME	3	0	0		03	50	50	100	3
3	INT	BME803	Internship (Industry/Research) (14 - 20 weeks)	TD: ME	0	0	12		03	100	100	200	10
										200	200	400	16

Professional Elective Course (Online courses)

BME801A	Quality Design & Control (Available in NPTEL)	BME801C	Modelling & Analytics for Supply Chain Management (Available in NPTEL)
BME801B	Machinery Fault Diagnosis and Signal Processing (Available in NPTEL)	BME801D	Strategies for Sustainable Design (Available in NPTEL)
Open Elective Courses (Online Courses)			
BME802A	Fundamentals of Automotive systems (Available in NPTEL)	BME802C	Computer Integrated Manufacturing (Available in NPTEL)
BME802B	Product Design and Manufacturing (Available in NPTEL)	BME802D	Business Planning & Project Management (Available in Swayam Portal)

L: Lecture, T: Tutorial, P: Practical S= SDA: Skill Development Activity, CIE: Continuous Internal Evaluation, SEE: Semester End Evaluation. TD- Teaching Department, PSB: Paper Setting department, OEC: Open Elective Course, PEC: Professional Elective Course. PROJ: Project work, INT: Industry Internship / Research Internship / Rural Internship

Note: VII and VIII semesters of IV years of the program

Swapping Facility

- Institutions can swap VII and VIII Semester Scheme of Teaching and Examinations to accommodate research internships/ industry internships/Rural Internship after the VI semester.

- Credits earned for the courses of VII and VIII Semester Scheme of Teaching and Examinations shall be counted against the corresponding semesters whether VII or VIII semester is completed during the beginning of IV year or later part of IV year of the program.

Elucidation:

At the beginning of IV years of the program i.e., after VI semester, VII semester classwork and VIII semester Research Internship /Industrial Internship / Rural Internship shall be permitted to be operated simultaneously by the University so that students have ample opportunity for an internship. In other words, a good percentage of the class shall attend VII semester classwork and a similar percentage of others shall attend to Research Internship or Industrial Internship or Rural Internship.

Research/Industrial /Rural Internship shall be carried out at an Industry, NGO, MSME, Innovation centre, Incubation centre, Start-up, centre of Excellence (CoE), Study Centre established in the parent institute and /or at reputed research organizations/institutes.

The mandatory Research internship /Industry internship / Rural Internship is for 14 to 20 weeks. The internship shall be considered as a head of passing and shall be considered for the award of a degree. Those, who do not take up/complete the internship shall be declared to fail and shall have to complete it during the subsequent University examination after satisfying the internship requirements.

Research internship: A research internship is intended to offer the flavour of current research going on in the research field. It helps students get familiarized with the field and imparts the skill required for carrying out research.

Industry internship: Is an extended period of work experience undertaken by students to supplement their degree for professional development. It also helps them learn to overcome unexpected obstacles and successfully navigate organizations, perspectives, and cultures. Dealing with contingencies helps students recognize, appreciate, and adapt to organizational realities by tempering their knowledge with practical constraints.

Rural Internship: Rural development internship is an initiative of Unnat Bharat Abhiyan Cell, RGIT in association with AICTE to involve students of all departments studying in different academic years for exploring various opportunities in techno-social fields, to connect and work with Rural India for their upliftment.

The faculty coordinator or mentor has to monitor the student's internship progress and interact with them to guide for the successful completion of the internship.

The students are permitted to carry out the internship anywhere in India or abroad. University shall not bear any expenses incurred in respect of the internship.

With the consent of the internal guide and Principal of the Institution, students shall be allowed to carry out the internship at their hometown (within or outside the state or abroad), provided favorable facilities are available for the internship and the student remains regularly in contact with the internal guide. University shall not bear any cost involved in carrying out the internship by students. However, students can receive any financial assistance extended by the organization.

Professional Elective /Open Elective Course:These are ONLINE courses suggested by the respective Board of Studies. Details of these courses shall be made available for students on the VTU web portal.

COURSE MENU

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

B.E. in the title of the program

Scheme of Teaching and Examinations 2022

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2023-24)

Scheme B-VI SEMESTER for the candidates who seek a two-semester internship with project work /Start-up

Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination			Credits	
					Theory Lecture	Tutorial	Practical/ Drawing	SDA	Duration in hours	CIE Marks	SEE Marks		Total Marks
1	IPCC	BXX601	Heat Transfer		3	0	2		03	50	50	100	4
2	PCC	BXX602	Machine Design		4	0	0		03	50	50	100	4
3	PEC	BXX613x	Professional Elective Course		3	0	0		03	50	50	100	3
4	OEC	BXX654x	Open Elective Course		3	0	0		03	50	50	100	3
5	PCCL	BXXL606	Machine Design Lab		0	0	2		03	50	50	100	1
6	AEC/SDC	BXX657x	Ability Enhancement Course/Skill Development Course V		If the course is offered as a Theory				01	50	50	100	1
					1	0	0						
					If course is offered as a practical								
					0	0	2						
7	MC	BNSK65B	National Service Scheme (NSS)	NSS coordinator									
		BPEK65B	Physical Education (PE) (Sports and Athletics)	Physical Education Director	0	0	2		100	---	100	0	
		BYOK65B	Yoga	Yoga Teacher									
8	IKS	BIKS609	Indian Knowledge System		1	0	0		01	100	0	100	0
Total									500	300	800	16	

Professional Elective Course

BME613A	Total Quality Management	BME613C	MEMS and Microsystem Technology
BME613B	Refrigeration and Air Conditioning	BME613D	Design for Manufacturing and Assembly
Open Elective Course			
BME654A	Project Management	BME654C	Introduction to Mechatronics

BME654B	Renewable Energy Power plants	BME654D	Modern Mobility
Ability Enhancement Course / Skill Enhancement Course-V			
BME657A	Basics of Matlab [0-0-2]	BME657C	Simulation and Analysis using Ansys workbench [0-0-2]
BME657B	Fundamental of Virtual Reality ARP Development	BME657D	Introduction Augmented Reality

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI

B.E. in the title of the program

Scheme of Teaching and Examinations 2022

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

(Effective from the academic year 2023-24)

Scheme BVII and VIII semesters for the candidates who seek an internship with project work

Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination			Credits	
					Theory Lecture	Tutorial	Practical/ Drawing	SDA	Duration in hours	CIE Marks	SEE Marks		Total Marks
1	IPCC	BXX701	To be completed in 5 th /6 th semester		3	0	2		03	50	50	100	4
2	IPCC	BXX702	To be completed in 5 th /6 th semester		3	0	2		03	50	50	100	4
3	PCC	BXX703	To be completed in the 6 th semester		4	0	0		03	50	50	100	3
4	PEC	BXX714x	Professional Elective Course (MOOC Courses)		3	0	0		03	50	50	100	3
5	OEC	BXX755x	Open Elective Courses (MOOC courses)		3	0	0		01	50	50	100	3
1	PEC	Bxx801x	Professional Elective (MOOC Courses)		3	0	0		03	50	50	100	3
2	OEC	Bxx802x	Open Elective (MOOC Courses)		3	0	0		01	50	50	100	3
3	PROJ	BXX883	Project - outcome of training		0	0	12		03	100	100	200	9
4	INT	Bxx804	Internship (Industry/Research) (02 semesters)		0	0	12		03	100	100	200	10
Total									200	200	400	42	



Mechanical Engineering is a field that requires dedication and focus

It is a challenging but also exciting and highly satisfying career



**M E C H A N I C A L
E N G I N E E R I N G**

LEARN MORE

Please contact us for further details-*/
or with any questions you may have.

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MILESTONES IN THE JOURNEY

1951

* UBDTCE formerly known as GBDTCE was established in the year 1951, started at Municipality Building
* Introduction of one UG Course B.E. Civil Engineering

1956

Main building was inaugurated on September 24, 1956 by Sri Jayachamarajendra Wadiyar Bahadur, Maharaja of Mysore.

1967

Introduction of B.E. Electronics and Communication Engineering Course

1987

Introduction of M.Tech. Production Engg. Systems Technology (PEST)

1996

Introduction of B.E. Industrial & Production Engineering Course

2003

* TEQIP - Phase I sanctioned
* Introduction of M.Tech Environmental Engineering, Computer Aided Design of Structures, Machine Design, Thermal Power Engg, Power Systems Engineering, Digital Communication and Networking, Computer Science and Engg.

2009

Accreditation of 2 U.G programs Namely EC & CS by NBA for Three years.

2011

Introduction of two PG Courses Master of Business Administration (MBA), Master of Computer Applications (MCA)

2023

Inauguration of Skill Development Training Centre

2025

Introduction of two AICTE Sponsored IDEA & AVPL Drone Labs

1951

The College has been named after the donors Bramhappa Devendrappa Tanvanappanavar (BDT)
* UBDTCE was the only Government Engineering College in the State & affiliated with the University of Mysore

1957

Introduction of B.E. Mechanical Engineering and Electrical & Electronics Engineering Courses

1984

Introduction of B.E. Computer Science & Engineering and Electronics & Instrumentation Engineering Courses

1992

College transferred to Kuvempu University on June 1, 1992, as a Constituent Engineering College

2001

Accreditation of 4 UG programs namely CV, ME, EE & EC by NBA for Five years.

2009

College transferred to Davangere University, on August 18, 2009, as a Constituent Engineering College

2011

College transferred to Visvesvaraya Technological University VTU, Belagavi, on February 24, 2011 as its first Constituent Engineering College

2022

Inauguration of R&D block (under smart city Project)

2024

* Inauguration of "Amrutha Mahotsava Bhavan" building on March 12, 2024
* Introduction of B.E. Robotics and Artificial Intelligence Engineering Course

2025

Applied for NBA Accreditation

SALIENT FEATURES OF THE INSTITUTE

Constituent College of VTU, Belagavi

Beautiful campus spread over 46.19 acres

Qualified & Experienced Faculty & Staff

NBA Accredited in the Year 2001 and 2009.

TEQIP Phase-1 Sponsored Institute

Central Library facility & Member of VTU Consortium

Science & Technology Entrepreneurs Park (STEP)

National Cadet Corps (NCC) Unit

National Service Scheme (NSS) Unit

Electoral Literacy Club

Facilities for Indoor and outdoor Games, Gymnasium

Govt. sponsored students projects

Industry Institute Partnership Cell

ISTE Students' & Faculty Chapters

Institute Innovation Council & IPR Cell

Students Grievances cell

AICTE Activity Point Programme

Youth Red Cross Wing & Community Activities

Excellent Training and Placement Cell

Students' Counseling (Mentoring)

Students' Council & Annual Cultural Fest (Chaitra)

Departmental Forums & Alumni Association

Sports & Yoga Training Centre

UBDTEC Cooperative Society & Canteen Facility

Hostel: For Boys and Girls

Anti-ragging Cell & Anti-ragging Squad

Industry Oriented Internship & Training

College Internal Complaints Committee (CICC)