

Department of Automobile Engineering



About the Discipline: Automobile Engineering

Automotive or Automobile Engineering is a branch of engineering discipline which studies the operating principles of the automobiles by incorporating various elements of engineering such as mechanical, electrical, electronic, software and safety engineering. The study of automotive engineering is to design, develop, fabricate, and testing vehicles or vehicle components from the concept stage to production stage. Production, development, and manufacturing are the three major functions in this field.

Automobile Engineers are mainly divided into three streams such as production or design engineering focuses on design components, testing of parts, coordinating tests, and system of a car; Development domain is concerned with performance, durability, and speed of the vehicle; and Manufacturing domain deals with the creation and assembling the whole parts of automobiles. The automotive engineering field is research-intensive and involves direct application of mathematical models and formulas.

About the Department

The Department of Automobile Engineering was established in the year 2009 at the very inception of Dr. Sudhir Chandra Sur Degree Engineering College. The department started with a Four years B. Tech course (capacity of 60 students) and later on, Diploma in Automobile Engineering (capacity of 60 students) started in 2014.

The department offers courses to ensure a regular supply of top notch Automobile Engineers who have hands on experience and are well versed with latest Automobile Technology to fill up the demand gap between industry and academia. The department has state of the art laboratory facilities to provide hands on training to the students in the emerging field of specialization. Automobile engineering students get exposure to practically all fields of engineering. Automobile is a branch where all sorts of engineering and technologies are involves e.g. Automobile, Mechanical, Electrical, Electronics, Industrial design. The department has their student chapter under SAE (Society of Automotive Engineers).

Vision of the Department

To be recognized as a space of excellent education and research in the field of Automobile Engineering generating the dedicated workforce and to help as an important resource for industries, research and society most importantly.

Mission of the Department

1. To uphold academic growth by developing a space where the students will be engaged in the search of new knowledge and therefore inventive ideas will emerge.

2. To implement a comprehensive approach in designing the curriculum so that the students can be in touch with the advances in engineering thus meeting the industry requirements.
3. To develop coordination with important industries, R&D organization, educational institutions for continuous improvement in teaching, training and research.
4. To provide the students such an environment where leadership and ethical values will be appreciated leading to meaningful contributions to the society.

Program Educational Objectives

1. To enhance the fundamental engineering & science knowledge of the under graduates to develop their employability skills and sincere interest in research.
2. To develop high level of technical competency combined with research and problem solving skills to generate innovative solutions in Automobile Engineering and/or related interdisciplinary areas.
3. To follow methodological approaches dedicated to extend the depth and breadth of the undergraduate engineers from both professional and societal perspectives.
4. To nourish the professional values and develop communication skills to perform as a team in all possible situations.
5. To create an excellent environment where the ideas to search for acquiring new knowledge will be encouraged.

Program Outcomes

1. **Engineering Knowledge:** Apply the knowledge of mathematics, science, fundamentals, and an engineering specialization to the solution of complex engineering problems related to automobile engineering.
2. **Problem Analysis:** Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/ Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct Investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions in automobile.
5. **Modern Tool Usage:** Create, select, and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. **The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess automobile based societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex automobile engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-Long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and life -long learning in the broadest context of technological change.

Program Specific Outcomes

1. Analyze, Design and Evaluate Automobile components and systems using conventional and/or CAD/ CAM tools.
2. Plan, process automation and quality assurance system for manufacturing of given automobile components and systems.

Courses Offered

- Bachelor of Technology in Automobile Engineering (4 year course).
- Diploma in Automobile Engineering (3 year course).
- Diploma in Vocational (D. Voc) in Automobile Servicing (3 year course).

Meeting the Industry Requirement

- Industry wants ready engineers i.e. engineers who can deliver from day one.
- This is only possible if our teaching is industry oriented.
- The department has Automobile lab to provide industry oriented hands on training.
- The students learn to design automobile components and handle projects related to automobile development using latest software.

Lab Facilities

The department has labs with state of the art facilities.

Existing laboratories of Automobile Engineering are as follows:

1. Engine Component Lab (Multi cylinder petrol and diesel engines, Variable compression ratio single cylinder diesel engine etc)
2. Engine Testing and Pollution Measurement Lab (Hydraulic, Mechanical and Eddy current dynamometer set up for petrol, diesel and gas engine).
3. Chassis Component Lab (Cut section of different types of rear axle and gear boxes, Cut section of Tata 407 running model etc).
4. Auto Scanning Lab (Wheel balancing machine, Head light beam adjustment, Two wheeler chassis dynamometer, Computerized wheel alignment equipment, Two post lifter etc).
5. Computer Aided Design Lab (AutoCAD, CREO, Catia).
6. Applied Mechanics Lab (Universal testing machine, Fatigue testing machine, Torsion testing machine Hardness testing machine etc).
7. Fluid Mechanics Lab (Orifice meter, Venturi meter, V-notch, Jet pump, Bernoulli's experiment, Pitot tube etc set up etc)
8. Applied Thermodynamics and Heat Transfer Lab (Concentric tube heat exchanger, Refrigeration test rig etc).
9. Metrology & Measurement Lab (All types of vernier, screw gauge, set for checking gear tooth profile etc).
10. Manufacturing & Workshop Practice Lab (Welding shop, Forging shop, Carpentry shop and Machine shop including CNC etc).
11. Project Lab.

Collaboration with Industry

- MoU with Ashok Leyland for enhancing the knowledge of advanced technologies, skill based training to the students especially in the advanced areas of Automobile Engineering.
- MoU with Hyundai Motor India Limited for the community enhancement on education standards, in-line with latest technologies with the aid of specially designed curriculum and training material.
- Associated with BMW Skill Next Program for the year 2018-19.



Automobile Laboratories at a Glance



Auto Scanning Laboratory



Automobile Chassis Laboratory



Automobile Engine Laboratory



ETPM Laboratory



Workshop



Design Laboratory



Measurement and Metrology Lab.



Graphics Laboratory



Heat Transfer Laboratory

Highlight of Departmental Activities

- Participated in the Virtual Round of BAJA SAE INDIA 2017 & 2018 held at Chitkara University, Chandigarh.
- Industrial Visit for the 4th semester of Diploma 2015-2018 students at Bhandari Motors during 21 & 22nd April, 2017.
- Industrial Visit for the 6th semester of Diploma 2014-2017 students at Mukesh Hyundai during 11 & 12th May, 2017.
- Training of Some Departmental Faculty Members at Ashok Leyland, Chennai during 3 – 5th July, 2017.
- Special training program at our JIS Group – Ashok Leyland Skill Development Centre for Diploma 2014 – 2017 students during 24 – 29th July 2017.
- Intra College Quiz Competition “Piston Heads” to enrich the knowledge and applications of Automobile Engineering in Modern Practices on 12th October, 2017.
- National Workshop on Recent Advances in Automotive Technologies on 25th October, 2017.
- Invited Lecture on Theories of Failure and Fatigue Failure on 7th November, 2017.
- Industrial Visit for the 4th semester of Diploma 2016-2019 students at Bhandari Motors on 6th November, 2017.
- National Workshop on Auto Mechanics “CarDiology” on 9th February, 2018.
- Industrial Visit for the 4th semester of Diploma 2016-2019 and 6th semester of B.Tech 2015-2019 students at Saini Toyota on 13th February, 2018.
- One Day Seminar on Expectations of Industry from Fresh Mechanical and Automobile Engineers on 27th September, 2018.
- Industrial Visit for the 7th semester of B.Tech 2015-2019 students at Bharat Earth Movers Limited (BEML), Taratala on 4th October, 2018.
- Inter College Quiz Competition “Carnival” to enrich the knowledge and applications of Automobile Engineering in Modern Practices on 5th October, 2018.
- Publication of Wall Magazine of Automobile Engineering Department, 'OCTANE', 2nd Edition, Volume 1 on 2nd November, 2018.
- Industrial Visit for the 4th semester of Diploma 2017-2020 students at Bhandrai Automobile Pvt. Ltd., Sodepur on 30th January, 2019.
- Industrial Visit for the 6th semester of Diploma 2016-2019 students at Mukesh Hyundai, Krishnapur, Kolkata on 01st March, 2019
- Two Day Seminar on Renewable Energy Technologies on 27th & 28th March, 2019.
- Invited Lecture on “Air Pollution and Its Remedies-A Challenge” on 26th April 2019.
- Invited Lecture on “Internet of Vehicles” on 27th April, 2019.
- Industrial Visit for the 6th semester of B.Tech 2016-2020 students at Shree Automotive Pvt. Ltd., Chamrail, Howrah on 2nd May, 2019.

Glimpses of Student Activities



CAR SHOW, 2016



BIKE SHOW, 2016



BAJA SAE INDIA, 2017



BAJA SAE INDIA, 2018



National Workshop, RAAT 2017



Invited Lecture, 2017



Piston Heads, Quiz Show, 2017



Industrial Visit, 2018



Carnival, Quiz Show, 2018



CarDiology, National Workshop, 2018



Seminar, 2018



Octane, Wall Magazine, 2018

SAE (Society of Automotive Engineers) Collegiate Club

SAE International, initially established as the **Society of Automotive Engineers**, is a U.S.-based, globally active professional association and standards developing organization for engineering professionals in various industries. SAEINDIA is an affiliate society of SAE International, registered as Indian non-profit engineering and scientific society dedicated to the advancement of mobility community in India. SAE Collegiate Chapters are a way for SAE International student members to get together on their campus and develop skills in a student-run and -elected environment. Student Members are vital to the continued success and future of SAE.

While your course work teaches you the engineering knowledge you need, participation in your SAE Collegiate Chapter can develop or enhance other important skills, including: leadership, time management, project management, communications, organization, planning, delegation, budgeting, and finance .SAE Career Center is specifically designed to connect job seekers and employers in the mobility industry. A sampling of the SAE audience includes automotive engineers, aerospace engineers, project engineers, hybrid engineers, mechanical engineers and design engineers. The Career Center links our members and industry professionals with the most relevant career opportunities - while also linking academic, government, and corporate recruiters and employers with highly qualified candidates.

Achievers

1. Subhayan Das (2017, AUE) University 1st Rank (Gold Medalist) in Merit Basis (8.93) in August, 2017.
2. Krishanu Sarkar (2017, AUE) University 3rd Rank (Bronze Medalist) in Merit Basis (8.88) in August, 2017.
3. Rajdeep Ray (3rd Year, AUE) selected for Winter Camp at AIT, Bangkok in December, 2017.
4. Rahul Kumar Jha (2018, AUE) University 1st Rank (Gold Medalist) in Merit Basis (8.87) in August, 2018.

Placement and Higher Studies

Many students after passing out opt for higher studies, applying for Masters Degree in various prestigious institutes around the globe. Some of the glimpses of the achievers and recruiters of last year are furnished below.

Higher Studies



**Prateek Rounak, 2018 B.Tech
NID, Gandhinagar**



**Satayu Ghosh, 2019 B.Tech
IISWBM, Kolkata**

Placed Ones



**Aakash Maskara, 2018
B.Tech, AIS Glass**



**Rajdeep Ray, 2018 B.Tech
Acuvate Software**



**Aman Raj, 2018 B.Tech
Epic Research**



**Prosun Ghosh, 2018 B.Tech,
Ayant Software**



**Nikhil Choubey, 2018 B.Tech,
Bengal Hyundai**



**Debashis Saha, 2018 B.Tech
French Motor**



**Somenath Ghosh, 2018
Diploma, Motherson**



**Rahich Mondal, 2018
Diploma, Motherson**



**Mikhail Saha, 2018 Diploma
Jaya Hind Industries**



**Soumya De, 2018 Diploma
QH Talbros**



**Sabyasachi Das, 2018 Diploma
Jaya Hind Industries**



**Somerik Sen, 2018 Diploma
QH Talbros**

Our Recruiters

Major chunk of our passed out student are trained and placed in:

- Public Vehicles Department (RTO), Govt. of West Bengal
- Acuvate Software
- Epic Research
- Hyundai Motors India Limited
- Motherson Automotive Technologies and Engineering
- Bosch Ltd.
- Tractors India Ltd.
- Bengal Tools Ltd.

- Simplex Infrastructure Ltd.
- QH Talbros Ltd.

- Jaya Hind Industries Ltd. and many more.



Departmental Page: <http://dsec.ac.in/btech-aue.php> and <http://dsec.ac.in/diploma-aue.php>

Facebook Page: <https://www.facebook.com/DSCSDECAUE/>

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