

Plot No.1 (A), CNI Complex, Patia, Bhubaneswar – 751024, Odisha, India.

[AFFILIATED TO BPUT, ODISHA]

www.coeb.ac.in

DEPARTMENT OF AUTOMOBILE ENGINEERING

ADD-ON COURSE

Course Title: Structural System Fundamentals

Programme

: B. Tech.

Branch

: Automobile Engineering

Semester

: 3rd

Learning Objective:

* To provide student with an opportunity to develop technical competency in automobile engineering.

To provide students an understanding of vehicle design.

To have an understanding about the transmission system in vehicles.

To provide students a general idea about safety consideration in automobiles.

SYLLABUS

Total Lecture Hours: 40

MODULE 1:

(14 hours)

Chassis, Body Pattern, Aerodynamics, Safety considerations in automobiles. Structural components and materials, Engine mounting- Front, Rear, Centre, Engine types- C.I, S.I, two stroke, four stroke, Vertical inline, V-type, Transmission- Necessity of transmission, principles

Clutch - Necessity, requirements of a clutch system, types of Clutches, Types of transmission- Manual, Automatic, DCT, CVT, AMT, IVT

MODULE 2:

(14 hours)

Types of transmission- Sliding mesh, constant mesh, synchromesh, Transfer gear box, Gear Selector mechanism, Types of suspension- Swing axle, sliding pillar, Macpherson strut, Double wishbone, multi-link suspension, Semi-trailing arm suspension, Swinging arm, Principle of steering, Center point steering, Steering linkages, Steering geometry and Wheel alignment, Construction, operation and maintenance of Lead acid batteries.

MODULE 3: (12 hours)

Battery charging system, Principles and Operation of cutout and regulators, Starter motor, Battery Ignition and magneto ignition systems ignition timing, alternators, Fuel tank, Fuel pump, Fuel injection, Exhaust, Catalytic converter, Engine cooling systems, Muffler/Silencers, Power steering, Special steering systems

Course Outcome:

After completion of course the students will be able to:

CO1: Understand the fundamentals and importance of engines, engine components, fuel parameters and advancement in technology.

CO2: Examine the aspects of vehicle design, engine construction and system components

CO3: Understanding about the transmission system in vehicles.

CO4: They will able to understand the fundamental of vehicle design

Text Book:

1. Book on Automotive Systems: Principles and Practices, First Edition, G.K.Awari, V.S.Kumbhar, R.B.Tirpude, CRC press, Taylor and Francis Group.

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2. Book on Modern Electric, Hybrid Electric and Fuel Cell Vehicles, Mehrdad Ehsani, Eimin Gao, Sebastein E. Gay, Ali Emadi. Power electronics and applications series, University of West Florida.

3. Book on Environmental Effects and Consumer Habits, Michael Beliveau, James Rehberger, Jonathan Rowell, Alyssa Xarras. Worcester Polytechnic Institute

Reference Text Book:

1. Bosch Automotive Handbook, Robert Bosch, 10th Edition

2. Automotive service: Inspection, Service and Repair. Tim Gilles. 6th Edition.

Online resources:

1. A Review on Hybrid Electric Vehicle Yasmeen Malik, Vikas Kumar, International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering.

2. Hybrid Electric Vehicle Rushikesh Trushar Soni, Journal of Mechanical and Civil Engineering.

Evaluation Criteria

Mandatory attendance of 75% for each student.

Conduction of two internal assessments and students have to secure 50% marks in each assessment.

Certificates will be awarded to each students fulfilling the above criteria.

Designed & developed by: Dr. Krishna & Prof. Pusparanjan Swain

HOD, Automobile Engg.

rincipal

College of Engineering Bhubaneswar



Plot No.1 (A), CNI Complex, Patia, Bhubaneswar – 751024, Odisha, India.

NOTICE

Department of Automobile Engineering Add On Course 2020-2021

Ref No: COEB/AE/2020/22

Date: 28.08.2020

It is hereby informed to all the students that the Department of Automobile Engineering is going to start the following Add-on courses for <u>Academic year 2020-2021</u>. All the students are instructed to enroll their names for the following courses on or before 10.09.2020. The classes will be commenced from $\underline{14/09/2020}$ in ON_LINE MODE from 5.30pm to 7.30pm. You can contact the following course co-ordinators for enrolment and any queries.

SI No.	Name of Add-on Course	Sem	Duration in hours	Name of the course co- ordinators
1	Structural System Fundamentals	3 rd	40	Prof. S. Soumya Ranjan Baliarsingh
2	Fuels and Combustion	5 th	40	Dr. J. Hussain
3	Modern Fuels and Alternatives to IC Engines	7 th	40	Prof. Pusparanjan Swain

1200

HOD

Automobile Engineering Department

Copy to:

- 1. Vice Chairman
- 2. Executive Director
- 3. Principal
- 4. All Notice Board.
- 5. A.O(Admin)
- 6. All HODs
- 7. Hostel, Security

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COLLEGE OF ENGINEERING BHUBANESWAR (COEB) ADD-ON COURSE ENROLLMENT SHEET

ON-LINE MODE

Name of the Department: Department of Automobile Engineering

Course Title: Structural System Fundamentals

Semester: 3rd Academic Year: 2020-21

Duration:

Student's Declaration/Undertaking

1. I do hereby undertake to participate in the above mentioned add on course.

2. I do hereby, promise to abide by the admissible rules and regulations, concerning discipline, attendance, etc. of the department, and also to follow the Code of Conduct prescribed for the students of the Institute, as in force from time to time.

S1. No.	Registration No.	Name of the Student
1		ABHISEK SAHOO
2		ANURAG DAS
3		DEBASHISH MALLICK
4		PABITRA KUMAR JENA
5		PRIYABRATA PARIDA
6		RAJENDRA KUMAR BAL
7		SHREE SONU NAIK
8		SOUBHAGYA MAHAPATRA
9		SANJEET RAUTARAY
10		ABHIMILAN MUTHAMAJHI
11		ANISH SUBHADARSHI
12		DEEP SHANKAR
13		DINESH KUMAR MOHANTY
14		ISWAR CHANDRA GHADEI
15		MANOJ KUMAR KISHAN
16		ROHIT KUMAR RAWANI
17		SATYA NARAYAN BISOYI
18		SHYAM SUNDAR SOREN
19		SOUBHAGYA RANJAN SETHY
20		SUNIL DAS
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Certified that the Enrollment Sheet is prepared by taking the consents of the students to enroll themselves in this Certificate Course (Add-On) to be conducted in Virtual Mode (ON-LINE) during the Pandemic COVID'19 through the link provided

Remarks by the Course Coordinator

They have also gone through the declaration/ undertaking to be strictly abided by them during the course period.

by the Department.

Course Coordinator (Signature with Seal)

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DEPARTMENT OF AUTOMOBILE ENGINEERING ADD ON/CERTIFICATE COURSE

ONLINE MODE

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PLOT NO-1(A), CNI COMPLEX, PATIA, BHUBANESWAR, KHORDHA, ODISHA-751024





Certificate of Completion

has successfully completed the ADD-ON Course titled	ofAutomobile Engg.	This is to certify that Mr./Ms.
se titledStructural System Fundamentals	semester_Third bearing registration number1901219001	ABHISEK SAHOO, student of the Department

TRUE COPY

conducted at College of Engineering Bhubaneswar in the academic year_

2020-21

Course-Coordinator

PRINCIPAL
Principal College of Engineering Bhubaneswan



PLOT NO-1(A), CNI COMPLEX, PATIA, BHUBANESWAR, KHORDHA, ODISHA-751024





Certificate of Completion

has successfully completed the ADD-ON Course titled	of Automobile Engg.	This is to certify that Mr./MsDEB
Structural System Fundamentals	_semester Third bearing registration number 1901219003	DEBASHISH MALLICK, student of the Department

TRUE COPY

conducted at College of Engineering Bhubaneswar in the academic year_

2020-21

Course-Coordinator

Principal

PRINCIPAL College of Engineering Bhubaneswan



PLOT NO-1(A), CNI COMPLEX, PATIA, BHUBANESWAR, KHORDHA, ODISHA-751024





Certificate of Completion

of Automobile Engg.	This is to certify that Mr./Ms. P_ℓ
semester_Thirdbearing registration number1901219004	PABITRA KUMAR JENA , student of the Department

TRUE COPY

conducted at College of Engineering Bhubaneswar in the academic year_

2020-21

Course-Coordinator

Principal

PRINCIPAL College of Engineering Bhubaneswar



PLOT NO-1(A), CNI COMPLEX, PATIA, BHUBANESWAR, KHORDHA, ODISHA-751024





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has successfully completed the ADD-ON Course titled	of Automobile Engg.	This is to certify that Mr./Ms.
e titledStructural System Fundamentals	semester Third bearing registration number 1901219005	PRIYABRATA PARIDA, student of the Department

TRUE COPY

conducted at College of Engineering Bhubaneswar in the academic year_

2020-21

Course-Coordinator

Principal

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PLOT NO-1(A), CNI COMPLEX, PATIA, BHUBANESWAR, KHORDHA, ODISHA-751024





Certificate of Completion

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conducted at College of Engineering Bhubaneswar in the academic year_

2020-21

Course-Coordinator

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