



COLLEGE OF ENGINEERING BHUBANESWAR

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

[AFFILIATED TO BPUT, ODISHA]

www.coeb.ac.in

DEPARTMENT OF AUTOMOBILE ENGINEERING

Name of the course : Add-on course on Fuels and Combustion
Course code :
Branch : Automobile
Semester : 5th
Duration : 40 hours

Learning Objective:

- ❖ To provide student with an opportunity to develop technical competency in automobile engineering.
- ❖ To provide students an understanding of the combustion system in vehicles.
- ❖ To have an understanding about supercharging and Turbo charging.
- ❖ To provide students a general idea about trouble shooting.

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 maintenance and testing.

CO3: Understanding about the advanced techniques and tools used.

CO4: Explain the effects of exhaust emission on human health and various pollution norms.

SYLLABUS

MODULE 1:

(14 hours)

IC Engines Combustion Performance Parameters:

Fuels and suitability of fuels for use in S.I. Engines, Rating of S.I. Engines fuels, Carburetors and carburetion, Performance characteristics, Direct Injection Stratified Charge engines (DISC),

Homogeneous charge CI engines (HCCI), Supercharging and Turbo charging, Digital simulation for performance prediction.

MODULE 2:

(14 hours)

Fuel system, Fuel tank, Fuel pump, Fuel injection, Exhaust, Catalytic converter, Engine cooling systems, Muffler/Silencers, Advanced techniques and tools used, Maintenance documentation,

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Trouble shooting and service procedures, Tools and equipment for repair and Overhaul, Testing equipments.

MODULE 3:

(12 hours)

Fundamentals of thermochemistry, Combustion air calculation, Calculation of calorific value of fuels, Adiabatic flame temperature calculation, Mechanism and kinetics of combustion, Flame properties, Combustion burners, Combustion furnaces, Internal combustion engines, Cracking, Thermal cracking, Visbreaking, Catalytic cracking, Hydrotreatment, dewaxing, deasphalting.

Text Book:

1. Modern Petroleum Technology, Vol 1, Upstream, Ed. by Richard A. Dave, IP, 6th ed., John Wiley & Sons. Ltd.
2. Modern Petroleum Technology, Vol 2, Downstream, Ed. by Alan G. Lucas, IP, 6th ed., John Wiley & Sons. Ltd.
3. Combustion, Irvin Glassman, 2nd ed., Academic Press.

Reference Text Book:

1. Modern Petroleum Refining Processes, B.K. Bhaskar Rao, 4th ed., Oxford & IBH Publishing Co. Pvt. Ltd.
2. Report on the project "Coal Combustion Study", sponsored by Tata Iron and Steel Company Ltd., Jamshedpur.
3. Fuels Combustion and Furnaces, John Griswold, Mc-Graw Hill Book Company Inc

Online resources:


1. <https://archive.nptel.ac.in/courses/103/105/103105110/>
2. <https://www.classcentral.com/course/youtube-fundamentals-of-combustion-i-92342>

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. J Hussain & S. Soumya Ranjan Baliarsingh

Approved by:



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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 Academic year 2020-2021. 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 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.

Sl 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

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)

DEPARTMENT OF AUTOMOBILE ENGINEERING

ADD ON/CERTIFICATE COURSE

STUDENT ATTENDANCE SHEET

ONLINE MODE

Academic Year: 2020-21

Semester : 5th Sem

1

Remarks

Certified that this certified course is conducted in virtual mode (ON-LINE) because of the pandemic COVID-19.

The attendance is taken with the remarks P-Present and A-Absent for the students.

SI No.	Reg. No.	Name of the Students	Remarks of Course Coordinator (P-Present, A-Absent)														
			Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	
1	1801219010	ANMOL KULLU	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P
2	1801219030	BJAYA KUMAR MAJHI	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P
3	1801219048	DIBYA RANJAN MOHARANA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
4	1801219053	GAUTAMI MOHANTY	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
5	1801219060	JAGANNATH MUNDA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
6	1801219072	LOKESH KUMAR PANDA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
7	1801219090	NIHAR RANJAN JENA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
8	1801219115	RAJKUMAR TARAI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
9	1801219135	SATYAM SRINIBAS MANIA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
10	1801219174	YASABANTA DAS	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
11	1801219175	ADITYA NARAYAN SAHOO	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P
12	1801219176	BACHAN BHOI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
13	1801219177	DEVENDER KUMAR KISHAN	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
14	1801219178	PRITYANKA CHATURVEDI	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P
15	1801219179	RAJAT RANJAN PANDA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
16	1801219180	SIDHARTH SANKAR SAHU	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
17	1801219181	SOUMYA RANJAN NATH	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P
18	1801219182	SUBHANKAR MOHANTY	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
19	1801219183	UTKAL KESHARI JENA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

Signature

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Signature
Course Coordinator
(Signature with Seal)
COURSE COORDINATOR



COLLEGE OF ENGINEERING BHUBANESWAR (COEB)

DEPARTMENT OF AUTOMOBILE ENGINEERING

ADD ON/CERTIFICATE COURSE

STUDENT ATTENDANCE SHEET

ONLINE MODE

Academic Year: 2020-21

Semester : 5th Sem

Programme: B Tech in AUTOMOBILE ENGINEERING

Duration:

Name of the Course: Fuels and Combustion

Remarks

Sl No.	Reg. No.	Name of the Students	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Remarks
1	1801219010	ANMOL KULLU	P	P	P	P	P	P	P	P	P	P	P	P	P	P	Certified that this certified course is conducted in virtual mode (ON-LINE) because of the pandemic COVID-19. The attendance is taken with the remarks P-Present and A-Absent for the students.
2	1801219030	BIJAYA KUMAR MAJHI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
3	1801219048	DIBYA RANJAN MOHARANA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
4	1801219053	GAUTAM MOHANTY	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
5	1801219060	JAGANNATH MUNDA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
6	1801219072	LOKESH KUMAR PANDA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
7	1801219090	NIHAR RANJAN JENA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
8	1801219115	RAJKUMAR TARAI	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
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18	1801219182	SUBHANKAR MOHANTY	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
19	1801219183	UTKAL KESHARI JENA	P	P	P	P	P	P	P	P	P	P	P	P	P	P	

(Signature)

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Course Coordinator
 (Signature with Seal)



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Certificate of Completion

This is to certify that Mr./Ms. ANMOL KULLU, student of the Department


of Automobile Engg. semester Fifth bearing registration number 1801219010

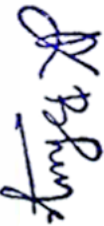
has successfully completed the ADD-ON Course titled Fuels and Combustion

conducted at College of Engineering Bhubaneswar in the academic year 2020-21.

TRUE COPY


Course-Coordinator


Principal


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Certificate of Completion


This is to certify that Mr./Ms. BIJAYA KUMAR MAJHI, student of the Department


of Automobile Engg. semester Fifth bearing registration number 1801219030


has successfully completed the ADD-ON Course titled Fuels and Combustion

conducted at College of Engineering Bhubaneswar in the academic year 2020-21.

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Certificate of Completion

This is to certify that Mr./Ms. DIBYA RANJAN MOHARANA, student of the Department
of Automobile Engg. semester Fifth bearing registration number 1801219048
has successfully completed the ADD-ON Course titled Fuels and Combustion
conducted at College of Engineering Bhubaneswar in the academic year 2020-21.

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Course-Coordinator


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Certificate of Completion

This is to certify that Mr./Ms. GAUTAM MOHANTY, student of the Department


of Automobile Engg. semester Fifth bearing registration number 1801219053


has successfully completed the ADD-ON Course titled Fuels and Combustion

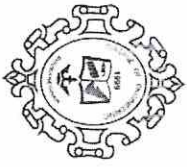
conducted at College of Engineering Bhubaneswar in the academic year 2020-21.

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Certificate of Completion


This is to certify that Mr./Ms. JAGANNATH MUNDA, student of the Department


of Automobile Engg. semester Fifth bearing registration number 1801219060

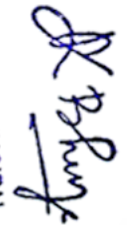
has successfully completed the ADD-ON Course titled Fuels and Combustion

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