



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 2019-2020

Ref No: COEB/AE/2019/16

Date: 03.07.2019

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 2019-2020. All the students are instructed to enroll their names for the following courses on or before 23.07.2019. The classes will be commenced from **13/08/2019** 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. Asis Kumar Nayak |
| 2 | Fuels and Combustion | 5 th | 40 | Pusparanjan Swain |
| 3 | Modern Fuels and Alternatives to IC Engines | 7 th | 40 | Dr. Krishna |

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 ENROLLMENT SHEET

Programme: B Tech in AUTOMOBILE ENGINEERING Academic Year : 2019-20
Semester: 5th Course Code (if any): Course Duration: 40 hours

Name of the Course: Fuels and Combustion

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

| Sl No. | Reg. No. | Name of the Students | Signature |
|--------|------------|----------------------|---------------------|
| 1 | 1701219028 | RISHA MAJHI | Risha Majhi |
| 2 | 1701219032 | DASARATHA TUDU | Dasaratha Tudu |
| 3 | 1701219046 | SOUMYARANJAN ROUDIA | Soumyaranjan Roudia |
| 4 | 1701219050 | YUBIN KUMAR MAREHI | Yubin Kumar Marehi |
| 5 | 1701219053 | GOKUL PRADHAN | Gokul Pradhan |
| 6 | 1701219059 | AMIT PAULEY | Amit Pauley |
| 7 | 1701219064 | SOUMYA RANJAN | Soumya Ranjan |
| 8 | 1701219075 | RISHABH TRIPATHI | Rishabh Tripathi |
| 9 | 1701219077 | K AMLAN PRIYADARSHAN | Kamlan Priyadarshan |
| 10 | 1701219078 | SADANANDA SA | Sadananda Sa |
| 11 | 1701219172 | ABDUL TAJUDDIN | Abdul Tajeeluz |
| 12 | 1701219173 | DEBENDRA KUMAR | Debendra Kumar |
| 13 | 1701219174 | DAMBURUDHAR BAG | Damburudhar Bag |
| 14 | 1701219175 | DEBASISH NAYAK | Debasish Nayak |
| 15 | 1701219208 | SMRUTI BIKASH RATH | S. B. Rath |
| 16 | 1701219209 | RAKESH SAMAL | Rakesh Samal |
| 17 | 1701219210 | SAMBIT DASH | Sambit Dash |
| 18 | 1701219211 | SANTOSH KUMAR BHUYAN | Santosh K. Bhuyan |
| 19 | 1701219212 | ARPITAUROJIT MOHANTY | A. Mohanty |
| 20 | 1701219213 | CHINMAY KUMAR BHOI | C.K. Bhoi |
| 21 | 1701219214 | HARIHARA MAHALIK | Harihara Mahalik |

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DEPARTMENT OF AUTOMOBILE ENGINEERING
ADD ON/CERTIFICATE COURSE
STUDENT ATTENDANCE SHEET

2

Programme: B Tech in AUTOMOBILE ENGINEERING

Semester: 5th

Academic Year: 2019-20

Name of the Course: FUELS AND COMBUSTION

Course Code (if any):

Sheet No:

| Sl No. | Reg. No. | Name of the Students | Date | Date | Date | Date |
|--------|------------|-----------------------|----------------------|----------------------|----------------------|----------------------|
| 1 | 1701219028 | RISHA MAJHI | 20/8/19 | 21/8/19 | 22/8/19 | 26/8/19 |
| 2 | 1701219032 | DASARATHA TUDU | Rishu Majhi | Rishu Majhi | Rishu Majhi | Rishu Majhi |
| 3 | 1701219046 | SOUMYARANJAN ROUDIA | Dasaratha Tudu | ABG | Dasaratha Tudu | Dasaratha Tudu |
| 4 | 1701219050 | YUBIN KUMAR MAREHI | Soumyaranjan Roudia | Soumyaranjan Roudia | Soumyaranjan Roudia | Soumyaranjan Roudia |
| 5 | 1701219053 | GOKUL PRADHAN | Yubin Mr. Marehi | Yubin Mr. Marehi | Yubin Mr. Marehi | Yubin Mr. Marehi |
| 6 | 1701219059 | AMIT PAULEY | Gokul Pradhan | Gokul Pradhan | Gokul Pradhan | Gokul Pradhan |
| 7 | 1701219064 | SOUMYA RANJAN | ABG | Amit Pauley | Amit Pauley | ABG |
| 8 | 1701219075 | RISHABH TRIPATHI | Soumya Ranjan | Soumya Ranjan | Soumya Ranjan | Soumya Ranjan |
| 9 | 1701219077 | K AMLAN PRIYADARSHAN | ABG | Rishabh tripathi | Rishabh tripathi | Rishabh tripathi |
| 10 | 1701219078 | SADANANDA SA | K. Adarsh kumar | K. Adarsh kumar | K. Adarsh kumar | K. Adarsh kumar |
| 11 | 1701219172 | ABDUL TAJUDDIN | Sudhanshu Sa | Sadananda Sa | Sadananda Sa | Sadananda Sa |
| 12 | 1701219173 | DEBENDRA KUMAR | Atdul Tajuddin | Abdul Tajuddin | ABG | Atdul Tajuddin |
| 13 | 1701219174 | DAMBURUDHAR BAG | Debandra Kumar | Debandra Kumar | Debandra Kumar | Debandra Kumar |
| 14 | 1701219175 | DEBASISH NAYAK | Damburudhar Bag | Damburudhar Bag | ABG | Damburudhar Bag |
| 15 | 1701219208 | SMRUTI BIKASH RATH | Debasish Nayak | Debasish Nayak | Debasish Nayak | Debasish Nayak |
| 16 | 1701219209 | RAKESH SAMAL | S. B. Rath | S. B. Rath | S. B. Rath | S. B. Rath |
| 17 | 1701219210 | SAMBIT DASH | ABG | Rakesh Samal | Rakesh Samal | Rakesh Samal |
| 18 | 1701219211 | SANTOSH KUMAR BHUYAN | Sambit Dash | Sambit Dash | Sambit Dash | Sambit Dash |
| 19 | 1701219212 | ARPITA UROJIT MOHANTY | Santosh Kumar Bhuyan | Santosh Kumar Bhuyan | Santosh Kumar Bhuyan | Santosh Kumar Bhuyan |
| 20 | 1701219213 | CHINMAY KUMAR BHOI | A. Mohanty | A. Mohanty | A. Mohanty | A. Mohanty |
| 21 | 1701219214 | HARIHARA MAHALIK | C.K Bhoi | ABG | C.K Bhoi | C.K Bhoi |
| | | | Harihara Mahalik | Harihara Mahalik | Harihara Mahalik | Harihara Mahalik |

[Signature]

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DEPARTMENT OF AUTOMOBILE ENGINEERING
ADD ON/CERTIFICATE COURSE
STUDENT ATTENDANCE SHEET

1

Programme: B Tech in AUTOMOBILE ENGINEERING

Semester: 5th

Academic Year : 2019-20

Name of the Course: FUELS AND COMBUSTION

Course Code (if any):

Sheet No:

| Sl No. | Reg. No. | Name of the Students | Date | Date | Date | Date |
|--------|------------|----------------------|---------------------|---------------------|---------------------|---------------------|
| 1 | 1701219028 | RISHA MAJHI | 13/8/19 | 14/8/19 | 16/8/19 | 19/8/19 |
| 2 | 1701219032 | DASARATHA TUDU | Risha Majhi | Pisra Majhi | Pisra Majhi | Pisra Majhi |
| 3 | 1701219046 | SOUMYARANJAN ROUDIA | Dasaratha Tudu | Dasaratha Tudu | Dasaratha Tudu | Dasaratha Tudu |
| 4 | 1701219050 | YUBIN KUMAR MAREHI | Soumyaranjan Roudia | Soumyaranjan Roudia | Soumyaranjan Roudia | Soumyaranjan Roudia |
| 5 | 1701219053 | GOKUL PRADHAN | Yubin Ku. Marehi | Yubin Ku. Marehi | Yubin Ku. Marehi | Yubin Ku. Marehi |
| 6 | 1701219059 | AMIT PAULEY | ABC | Gokul Pradhan | Gokul Pradhan | Gokul Pradhan |
| 7 | 1701219064 | SOUMYA RANJAN | Amit Pauley | Amit Pauley | Amit Pauley | Amit Pauley |
| 8 | 1701219075 | RISHABH TRIPATHI | Soumya Ranjan | Soumya Ranjan | Soumya Ranjan | Soumya Ranjan |
| 9 | 1701219077 | K AMLAN PRIYADARSHAN | Rishabh Tripathi | Rishabh Tripathi | Rishabh Tripathi | Rishabh Tripathi |
| 10 | 1701219078 | SADANANDA SA | K. Adarsham | K. Adarsham | K. Adarsham | K. Adarsham |
| 11 | 1701219172 | ABDUL TAJUDDIN | Sadananda Sa | Abdul Tajuddin | Abdul Tajuddin | Sadananda Sa |
| 12 | 1701219173 | DEBENDRA KUMAR | Abdul Tajuddin | Abdul Tajuddin | Abdul Tajuddin | Abdul Tajuddin |
| 13 | 1701219174 | DAMBURUDHAR BAG | Deendra Kumar | Deendra Kumar | Deendra Kumar | Deendra Kumar |
| 14 | 1701219175 | DEBASISH NAVAK | Damburudhar Bag | Damburudhar Bag | Damburudhar Bag | Damburudhar Bag |
| 15 | 1701219208 | SMRUTI BIKASH RATH | ABC | Debasish Navak | Debasish Navak | Debasish Navak |
| 16 | 1701219209 | RAKESH SAMAL | S. B. Raths | S. B. Raths | S. B. Raths | S. B. Raths |
| 17 | 1701219210 | SAMBIT DASH | Rakesh Samal | Rakesh Samal | Rakesh Samal | Rakesh Samal |
| 18 | 1701219211 | SANTOSH KUMAR BHUYAN | Sambit Dash | Sambit Dash | Sambit Dash | Sambit Dash |
| 19 | 1701219212 | ARPITA ROJIT MOHANTY | Santosh Ku Bhuyan | Santosh Ku Bhuyan | Santosh Ku Bhuyan | Santosh Ku Bhuyan |
| 20 | 1701219213 | CHINMAY KUMAR BHOI | A. Mohanty | ABC | A. Mohanty | A. Mohanty |
| 21 | 1701219214 | HARIHARA MAHALIK | C.K. Bhoi | C.K. Bhoi | C.K. Bhoi | C.K. Bhoi |

[Signature]

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DEPARTMENT OF AUTOMOBILE ENGINEERING
ADD ON/CERTIFICATE COURSE
STUDENT ATTENDANCE SHEET

3

Programme: B Tech in AUTOMOBILE ENGINEERING

Semester: 5th Academic Year : 2019-20

Name of the Course: FUELS AND COMBUSTION

Course Code (if any):

Sheet No:

| Sl No. | Reg. No. | Name of the Students | Date | Date | Date | Date |
|--------|------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| 1 | 1701219028 | RISHA MAJHI | 27/08/19 | 28/08/19 | 29/08/19 | 30/08/19 |
| 2 | 1701219032 | DASARATHA TUDU | Risha Majhi | Risha Majhi | Risha Majhi | Risha Majhi |
| 3 | 1701219046 | SOUMYARANJAN ROUDIA | Dasaratha Tudu | Dasaratha Tudu | Dasaratha Tudu | Dasaratha Tudu |
| 4 | 1701219050 | YUBIN KUMAR MAREHI | Soumyaranjan Roudia | Soumyaranjan Roudia | Soumyaranjan Roudia | Soumyaranjan Roudia |
| 5 | 1701219053 | GOKUL PRADHAN | Yubin Ku. Marehi | Yubin Ku. Marehi | Yubin Ku. Marehi | Yubin Ku. Marehi |
| 6 | 1701219059 | AMIT PAULEY | Gokul Pradhan | ABC | Gokul Pradhan | Gokul Pradhan |
| 7 | 1701219064 | SOUMYA RANJAN | Amit Pauley | Soumya Ranjan | Amit Pauley | Gokul Pradhan |
| 8 | 1701219075 | RISHABH TRIPATHI | Soumya Ranjan | Soumya Ranjan | Soumya Ranjan | Soumya Ranjan |
| 9 | 1701219077 | K AMLAN PRIYADARSHAN | ABC | Rishabh Tripathi | Rishabh Tripathi | Rishabh Tripathi |
| 10 | 1701219078 | SADANANDA SA | K. Adarsham | K. Adarsham | K. Adarsham | K. Adarsham |
| 11 | 1701219172 | ABDUL TAJUDDIN | Sadananda Sa | Sadananda Sa | Sadananda Sa | Sadananda Sa |
| 12 | 1701219173 | DEBENDRA KUMAR | Abdul Tajuddin | ABC | ABC | Abdul Tajuddin |
| 13 | 1701219174 | DAMBURUDHAR BAG | ABC | Debendra Kumar | Debendra Kumar | Debendra Kumar |
| 14 | 1701219175 | DEBASISH NAYAK | Damburudhar Bag | Damburudhar Bag | Damburudhar Bag | Damburudhar Bag |
| 15 | 1701219208 | SMRUTI BIKASH RATH | Debasish Nayak | Debasish Nayak | Debasish Nayak | Debasish Nayak |
| 16 | 1701219209 | RAKESH SAMAL | S. B. Rath | S. B. Rath | S. B. Rath | S. B. Rath |
| 17 | 1701219210 | SAMBIT DASH | Rakesh Samal | Rakesh Samal | Rakesh Samal | Rakesh Samal |
| 18 | 1701219211 | SANTOSH KUMAR BHUYAN | Sambit Dash | ABC | Sambit Dash | Sambit Dash |
| 19 | 1701219212 | ARPITA ROJIT MOHANTY | Santosh Kumar Bhuyan | Santosh Kumar Bhuyan | Santosh Kumar Bhuyan | Santosh Kumar Bhuyan |
| 20 | 1701219213 | CHINMAY KUMAR BHOI | A. Mohanty | A. Mohanty | A. Mohanty | A. Mohanty |
| 21 | 1701219214 | HARIHARA MAHALIK | C.K Bhoi | C.K Bhoi | C.K Bhoi | C.K Bhoi |

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DEPARTMENT OF AUTOMOBILE ENGINEERING
ADD ON/CERTIFICATE COURSE
STUDENT ATTENDANCE SHEET

(9)

Programme: B Tech in AUTOMOBILE ENGINEERING

Semester: 5th

Academic Year : 2019-20

Name of the Course: FUELS AND COMBUSTION

Course Code (if any):

Sheet No:

| Sl No. | Reg. No. | Name of the Students | Date | Date | Date | Date |
|--------|------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| 1 | 1701219028 | RISHA MAJHI | 4/9/19 | 5/9/19 | 6/9/19 | 10/9/19 |
| 2 | 1701219032 | DASARATHA TUDU | Risha Majhi | Risha Majhi | Risha Majhi | Risha Majhi |
| 3 | 1701219046 | SOUMYARANJAN ROUDIA | Dasaratha Tudu | Dasaratha Tudu | ABE | Dasaratha Tudu |
| 4 | 1701219050 | YUBIN KUMAR MAREHI | Soumyaranjan Roudia | Soumya Ranjan Roudia | Soumyaranjan Roudia | Soumyaranjan Roudia |
| 5 | 1701219053 | GOKUL PRADHAN | Yubin Ku. Marehi | ABE | Yubin Ku. Marehi | Yubin Ku. Marehi |
| 6 | 1701219059 | AMIT PAULEY | Gokul Pradhan | Gokul Pradhan | Gokul Pradhan | Gokul Pradhan |
| 7 | 1701219064 | SOUMYA RANJAN | Amit Pauley | Amit Pauley | Amit Pauley | Amit Pauley |
| 8 | 1701219075 | RISHABH TRIPATHI | Soumya Ranjan | Soumya Ranjan | Soumya Ranjan | Soumya Ranjan |
| 9 | 1701219077 | K AMLAN PRIYADARSHAN | Rishabh Tripathi | Rishabh Tripathi | Rishabh Tripathi | Rishabh Tripathi |
| 10 | 1701219078 | SADANANDA SA | Kadashyam | P. Kadashyam | ABE | Kadashyam |
| 11 | 1701219172 | ABDUL TAJUDDIN | Sadananda Sa | Sadananda Sa | Sadananda Sa | Sadananda Sa |
| 12 | 1701219173 | DEBENDRA KUMAR | ABE | Abdul Tajuddin | Abdul Tajuddin | Abdul Tajuddin |
| 13 | 1701219174 | DAMBURUDHAR BAG | Debenra Kumar | Debenra Kumar | Debenra Kumar | Debenra Kumar |
| 14 | 1701219175 | DEBASISH NAVYAK | Damburudhar Bag | Damburudhar Bag | Damburudhar Bag | Damburudhar Bag |
| 15 | 1701219208 | SMRUTTI BIKASH RATH | Debasish Navyak | ABE | Debasish Navyak | Debasish Navyak |
| 16 | 1701219209 | RAKESH SAMAL | S. B. Rath | S. B. Rath | S. B. Rath | S. B. Rath |
| 17 | 1701219210 | SAMBIT DASH | Rakesh Samal | ABE | Rakesh Samal | Rakesh Samal |
| 18 | 1701219211 | SANTOSH KUMAR BHUYAN | Sambit Dash | Sambit Dash | Sambit Dash | Sambit Dash |
| 19 | 1701219212 | ARPITA ROJIT MOHANTY | Santosh Kumar Bhuyan | Santosh Kumar Bhuyan | Santosh Kumar Bhuyan | Santosh Kumar Bhuyan |
| 20 | 1701219213 | CHINMAY KUMAR BHOI | ABE | A. Mohanty | A. Mohanty | A. Mohanty |
| 21 | 1701219214 | HARIHARA MAHALIK | C.K BHOI | C.K BHOI | CK BHOI | CK BHOI |
| | | | Harihara Mahalik | Harihara Mahalik | Harihara Mahalik | Harihara Mahalik |



[Signature]

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DEPARTMENT OF AUTOMOBILE ENGINEERING
ADD ON/CERTIFICATE COURSE
STUDENT ATTENDANCE SHEET

5

Programme: B Tech in AUTOMOBILE ENGINEERING

Semester: 5th

Academic Year: 2019-20

Name of the Course: FUELS AND COMBUSTION

Course Code (if any):

Sheet No:

| Sl No. | Reg. No. | Name of the Students | Date | Date | Date | Date |
|--------|------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| 1 | 1701219028 | RISHA MAJHI | 12/9/19 | 13/9/19 | 16/9/19 | 17/9/19 |
| 2 | 1701219032 | DASARATHA TUDU | Pastor Nandi | Rishu Nandi | Leena Nandi | Pastor Nandi |
| 3 | 1701219046 | SOUMYARANJAN ROUDIA | Dasaratha Tudu | Dasaratha Tudu | Dasaratha Tudu | Dasaratha Tudu |
| 4 | 1701219050 | YUBIN KUMAR MAREHI | Soumyaranjan Roudia | Soumyaranjan Roudia | Soumyaranjan Roudia | Soumyaranjan Roudia |
| 5 | 1701219053 | GOKUL PRADHAN | Yubin Mr. Marehi | Yubin Mr. Marehi | Yubin Mr. Marehi | Yubin Mr. Marehi |
| 6 | 1701219059 | AMIT PAULEY | ABS | Gireesh Pradhan | Gireesh Pradhan | ABS |
| 7 | 1701219064 | SOUMYA RANJAN | Amit Pauley | Amit Pauley | Amit Pauley | Amit Pauley |
| 8 | 1701219075 | RISHABH TRIPATHI | Soumya Ranjan | ABS | Soumya Ranjan | Soumya Ranjan |
| 9 | 1701219077 | K AMLAN PRIYADARSHAN | Peshab Pradhan | Peshab Pradhan | Peshab Pradhan | Peshab Pradhan |
| 10 | 1701219078 | SADANANDA SA | Ranjan Pradhan | P. P. Adarshan | R. P. Adarshan | P. P. Adarshan |
| 11 | 1701219172 | ABDUL TAJUDDIN | Sadaranda Sa | Sadaranda Sa | Sadaranda Sa | Sadaranda Sa |
| 12 | 1701219173 | DEBENDRA KUMAR | Abdul Tajuddin | Abdul Tajuddin | Abdul Tajuddin | Abdul Tajuddin |
| 13 | 1701219174 | DAMBURUDHAR BAG | Debendra Kumar | Debendra Kumar | Debendra Kumar | Debendra Kumar |
| 14 | 1701219175 | DEBASISH NAYAK | Damburudhar Bag | Damburudhar Bag | Damburudhar Bag | Damburudhar Bag |
| 15 | 1701219208 | SMRUTI BIKASH RATH | Debasish Nayak | Debasish Nayak | Debasish Nayak | Debasish Nayak |
| 16 | 1701219209 | RAKESH SAMAL | S. B. Rath | S. B. Rath | S. B. Rath | S. B. Rath |
| 17 | 1701219210 | SAMBIT DASH | ABS | Rakesh Samal | Rakesh Samal | Rakesh Samal |
| 18 | 1701219211 | SANTOSH KUMAR BHUYAN | Sambit Dash | Sambit Dash | Sambit Dash | Sambit Dash |
| 19 | 1701219212 | ARPITA ROJIT MOHANTY | Santosh Kumar Bhuyan | Santosh Kumar Bhuyan | Santosh Kumar Bhuyan | Santosh Kumar Bhuyan |
| 20 | 1701219213 | CHINMAY KUMAR BHOI | A. K. Mohanty | A. K. Mohanty | A. K. Mohanty | A. K. Mohanty |
| 21 | 1701219214 | HARIHARA MAHALIK | A. K. Bhoi | A. K. Bhoi | A. K. Bhoi | A. K. Bhoi |
| | | | Harihara Mahalik | Harihara Mahalik | Harihara Mahalik | Harihara Mahalik |



(Signature)

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COLLEGE OF ENGINEERING BHUBANESWAR

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



Certificate of Completion

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


of Automobile Engg. semester Fifth bearing registration number 1701219028

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

conducted at College of Engineering Bhubaneswar in the academic year 2019-20.

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Course-Coordinator


Principal


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College of Engineering Bhubaneswar



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



Certificate of Completion

This is to certify that Mr./Ms. DASARATHA TUDU, student of the Department


of Automobile Engg. semester Fifth bearing registration number 1701219032


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

conducted at College of Engineering Bhubaneswar in the academic year 2019-20.

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 Course-Coordinator


 Principal


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



Certificate of Completion

This is to certify that Mr./Ms. SOMYARANJAN ROUDIA, student of the Department


of Automobile Engg. semester Fifth bearing registration number 1701219046


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

conducted at College of Engineering Bhubaneswar in the academic year 2019-20

TRUE COPY


 Course-Coordinator


 Principal


 PRINCIPAL
 College of Engineering Bhubaneswar



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



Certificate of Completion

This is to certify that Mr./Ms. YUBIN KUMAR MAREHI, student of the Department

of Automobile Engg. semester Fifth bearing registration number 1701219050

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

conducted at College of Engineering Bhubaneswar in the academic year 2019-20.

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Course-Coordinator

Principal

PRINCIPAL

College of Engineering Bhubaneswar



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Certificate of Completion

This is to certify that Mr./Ms. GOKUL PRADHAN, student of the Department


of Automobile Engg. semester Fifth bearing registration number 1701219053


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

conducted at College of Engineering Bhubaneswar in the academic year 2019-20

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Course-Coordinator


Principal


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