

**Faculty of Mechanical Engineering**  
**M.E. Internal Combustion Engineering**  
**(R 2021) Semester – I**

<b>Course Code: IC4111 Course Title: Internal Combustion Engines Laboratory</b>		
<b>Sl.No.</b>	<b>Description of the Equipment</b>	<b>Required Numbers (for batch of 25 Students)</b>
1.	Single cylinder and multi-cylinder gasoline/diesel engines for assembly and disassembly of engines	Each 1 No.
2.	BSVI diesel and gasoline (GDI) engines for study purpose.	Each 1 No.
3.	Single Cylinder PFI SI engine coupled to an eddy current dynamometer and installed with combustion pressure, crank angle, air flow, fuel flow measuring systems integrated with DAQ hardware and software for storage and display of data for performing combustion, performance, and emission study.	01 No.
4.	Single Cylinder CI engine coupled to an eddy current dynamometer and installed with combustion pressure, crank angle, air flow, fuel flow measuring systems integrated with DAQ hardware and software for storage and display of data for performing combustion, performance, and emission study.	01 No.
5.	Single Cylinder CI engine coupled to an eddy current dynamometer and integrated to air flow measurement system and air heating system to study the volumetric efficiency, equivalence ration and effect of preheated air on engine performance and emissions	01 No.
6.	Single Cylinder CI engine enabled with flexible electronically controlled fuel injection system, air, fuel flow and combustion measurement system to study the effect of fuel injection timing and fuel injection pressure on diesel engine performance, combustion, and emissions.	01 No.
7.	A semi or automatic flash and fire point apparatus for testing various fuels and blends as per IS and ASTM standards	01 No.
8.	A Kinematic viscometer to study the viscosity of various fuels and fuel blends	01 No.
9.	Engine out emissions HC, CO, CO <sub>2</sub> , NO and O <sub>2</sub> gas analyser	01 No.
10.	Diesel Smoke Meter	01 No.
11.	Three-way catalytic converter connected to Sl.No. 3 for analysing emission reduction before and after Three-way catalytic converter	01 No.
12.	Diesel oxidation catalyst (DoC) and Diesel Particulate Filter (DPF) fitted to either Sl.No. 4 or 5 or 6 to evaluate the performance of DoC and DPF	01 No.

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**(R 2021) Semester – II**

**IC4211 ANALYSIS AND SIMULATION LABORATORY FOR INTERNAL COMBUSTION  
ENGINEERING**

<b>Sl.No.</b>	<b>Description of Equipment</b>	<b>Required Numbers</b>
1.	Simulation Software: CONVERG	1 No.
2.	Simulation Software: STAR CCM+ / ANSYS FLUENT	1 No.
3.	Workstation / Server with a 32 core processor, advanced storage and RAM configuration (of atleast 64 x 2 GB ) with dedicated Graphics card , and Cooling system	1 No.
4.	Computer having core i7 or i9 12 <sup>th</sup> Gen processor or equivalent , with 16GB RAM, 512 GB /1 TB Hard Disk SSD and minimum 2GB Graphics Card dedicated, 24" monitor	10 Nos.