

## Department of Mechanical Engineering, NIT Calicut

### COMPUTERIZED VARIABLE COMPRESSION RATIO MULTIFUEL ENGINE TEST RIG WITH FIVE GAS EMISSION ANALYSERS

**Photo of Instrument:**



<b>Instrument Name</b>	Computerized Variable Compression Ratio Multifuel Engine Test Rig with Five Gas Emission Analyser									
<b>Instrument Model &amp; Serial No.</b>	Kirloskar, T V 1(VCRE-SI-CI)									
<b>Instrument Make</b>	Kirloskar									
<b>Category of Instrument</b>	Experimental Testing									
<b>Description of Instrument</b>	The engine is a single cylinder, four stroke, water cooled with maximum 5 kW output at 1500 RPM at normal compression ratio. The compression ratio can be varied from 12:1 to 20:1 for diesel / bio-diesel operation.									
<b>Instrument Technical Description and Major Specifications (This Specifications Limited to Major 5)</b>	<table border="1"> <tr> <td>Bore</td> <td>87.5 mm</td> </tr> <tr> <td>Stroke</td> <td>110 mm</td> </tr> <tr> <td>Displacement</td> <td>661 cc</td> </tr> <tr> <td>Normal Compression Ratio</td> <td>17.5:1</td> </tr> </table>		Bore	87.5 mm	Stroke	110 mm	Displacement	661 cc	Normal Compression Ratio	17.5:1
Bore	87.5 mm									
Stroke	110 mm									
Displacement	661 cc									
Normal Compression Ratio	17.5:1									

## Department of Mechanical Engineering, NIT Calicut

	Dynamometer	A.C. Regenerative type	
<b>Application of Instrument</b> (Limited to Major 4 or 5)	1) Performance (Load Test) 2) Heat Balance Test 3) Emission Test 4) Combustion Analysis Charts (P- $\Theta$ , P-V etc)		
<b>Type of Sample Required for Analysis / Testing (Quantity, Pre-Preparation, State etc.)</b>  <b>Guidelines for Sample Submission – User Instructions</b>	Alternate liquid fuels (like bio-diesel)  <u>Guidelines:</u> 1) Quantity: As per the type of test. 2) Sample should be in sealed condition with proper labelling.		
<b>Types of Analysis / Testing</b>	1) Performance (Load Test), Combustion Analysis Charts (P- $\Theta$ , P-V etc), Heat Balance and Emission Test using Diesel & Bio-diesel.  2) Performance (Load Test), Combustion Analysis Charts (P- $\Theta$ , P-V etc), Heat Balance and Emission Test using Diesel & Bio-diesel by varying Compression Ratio.		
<b>Faculty In-Charge Name / Email / Contact</b>	Dr. P. V. Manu, pvmanu@nitc.ac.in, 9447392531; Dr. Saleel Ismail, saleel@nitc.ac.in, 9884691904; Dr Arun P, arun.p@nitc.ac.in, 9496050083;		
<b>Technical Staff Name / Email / Contact</b>	Mr. Pradeep Kumar KK, kkp69@nitc.ac.in, 7560963041		
<b>Location of Instrument</b>	Heat engines lab		
<b>Other Details</b>			

## Department of Mechanical Engineering, NIT Calicut

### User Charges:

Sl. No	Type of Analysis / Testing	Internal - within Department of NITC	Internal - Other Departments NITC	External Academic Educational Institutes	National R&D Labs	Industry
1	Performance (Load Test), Combustion Analysis Charts (P- $\theta$ , P-V etc), Heat Balance and Emission Test using Diesel & Bio Diesel.	Nil	Rs. 500/ sample	Rs. 1000/ sample + GST	Rs. 3000/ sample + GST	Rs. 3000/ sample + GST
2	Performance (Load Test), Combustion Analysis Charts (P- $\theta$ , P-V etc), Heat Balance and Emission Test using Diesel & Bio Diesel by varying Compression Ratio.	Nil	Rs. 500/ sample	Rs. 1000/ sample + GST	Rs. 3000/ sample + GST	Rs. 3000/ sample + GST

Note: Consumables and any other expenditure charges will be as per requirement, if any.

### Slot Booking and Payment Work Flow: