

R.E. Society's
R P Gogate College of Arts & Science
R V Jogalekar College of Commerce, Ratnagiri

Maintenance Policy

The institute has a definite and systematic mechanism for maintenance and upkeep of such facilities. Some of them are maintained by an Annual Maintenance Contract (AMC) given to concerned agencies, some are maintained by external agencies on demand as per the need and the others are maintained by the faculty members of the institution and skilled staff like plumber, carpenter and electrician appointed by the society. A technical person has been appointed who takes care of regular maintenance of IT infrastructure in the campus.

A 'maintenance register' is maintained wherein complaints regarding repairs and maintenance of various facilities in the campus are registered by the staff members which are attended by concerned technical persons on regular basis.

The following table depicts the schemes for maintenance of some very important facilities in the campus either by an AMC or by some external agency on demand basis and its typical frequency.

Facility in the campus	Type	Frequency of maintenance
<i>RISO duplicating machine, Xerox machine</i>	<i>AMC</i>	Every 3-months or as per the need
<i>Office automation</i>	<i>AMC</i>	As per the need
<i>Intercoms</i>	<i>AMC</i>	Monthly or as per the need
<i>Tower clock</i>	<i>AMC</i>	Every 3-months
<i>Website</i>	<i>AMC</i>	Weekly or as per need
Gymnasium equipments	-	Weekly / as per need
Generators, Inverters/UPS, Solar systems, Aqua-guard water purifiers, Fire Extinguishers	-	Every 3-months or as per the need
Water tanks, Library Books (for binding), Furniture	-	Every 6-months
Iron gates and grills, sanitation and toilets, water supply and plumbing	-	Yearly or as per the need
Library paste control	-	Every 3 years
Pumps and pump control systems, electrical appliances, Automatic bell system, IT infrastructure, Air Conditioners, CCTV network, Water coolers, Biometric machines, Laboratory equipments	-	As per the need

Maintenance and Calibration of Scientific instruments:

Different science departments have a number of sophisticated equipments which need a regular maintenance. Typically the high-end equipments are mainly maintained by the service engineers of the respective manufacturers who visit the institute for maintenance periodically or as per the need.

The instruments are also calibrated as part of their maintenance. Such calibration is done regularly or as per the need by the expert faculty members in the respective departments, as below.

- The double beam/ single beam UV-Visible spectrophotometers, the Flame photometers and the Fluorimeters in the chemistry laboratory are calibrated as per the Standard Operating Procedure (SOP) of calibration as prescribed by the Indian Pharmacopeia (IP) after every six months, particularly at beginning of each semester.
- The potentiometers, PH meters, conductometers and the balance in these labs are calibrated as per their manuals almost every week before the practical sessions. In the department of biological sciences the colorimeter, pH meter and Fluorimeter are

calibrated every month and the spectrophotometer every week as per the manual. Calibration of 'Autoclave' is done six monthly by validation by using '*Bacillusstereothermophilus*' strips/ culture. Also calibration of 'biosafety cabinets (laminar air flow)' is done every month by checking efficiency of HEPA filters.

- The instruments in Physics department that mainly need calibration to be done regularly are- i) Oscilloscopes – the most important and useful measuring instrument and ii) 'Function Generators' and resistance boxes that are widely used in many experiments at UG and PG levels. The calibration of the oscilloscopes is done every six months at beginning of each semester by the faculty members as per the procedure given in the service manual. The function generators are calibrated as and when needed with help of the calibrated oscilloscopes. The resistance boxes are calibrated after every six months by the laboratory assistants by measuring resistances with help of a standard ohmmeter and by replacing them by resistances of correct values.
- A Rapid Thermal Annealing (RTA) system has been designed and developed indigenously by faculty members of Physics department as part of their research work and is being currently used for processing of semiconductor samples. This system is calibrated usually before its use either with help of the thermocouple signal output or melting in the system highly pure (99.99% pure) metals of known melting point.
- The electro-mechanical system 'Total Station' in department of Geography which used in ground survey is calibrated typically once in a year by an expert from the 'South Instruments, Mumbai'.

Protection against Voltage fluctuations/ power failures:

The major and sensitive equipments are guarded against voltage fluctuations and power failures as below:

In addition to the common measures such as installing inverters/ UPS/ spike guards to take care of the voltage fluctuations and voltage spikes, there are two 3-phase central generators (Automech Silent DG set with Eicher make engine) of capacity 45 KVA each, one for each of the two main buildings of the institute. These are used during major power failures or during 'load shading' periods. Thus the sensitive equipments are provided with additional protection against voltage fluctuations with help of such UPS/ inverters and by installing voltage stabilizers dedicated to such equipments as below.

- The Atomic Absorption Spectrophotometer and Spectrofluorometer in chemistry laboratory are provided with 1 KVA UPS and an AC room for its protection against voltage fluctuations as well as against humidity and temperature variation.
- Stabilized power is provided to equipments like Flame photometer, Fluor meter, potentiometer, pH meter, conductometer, electronic balance in the department of chemistry and to shaker incubator, hot air oven, deep freezer (-20 °C) and the FTIR in the department of biological sciences and to the Keithley Electrometer and 'LCRQ' meter in department of Physics with help of stabilizers dedicated to these equipments.

A special protection has been provided to some sophisticated instruments against humidity, temperature variation and dust by keeping them in AC laboratories. The FTIR, Trinocular microscope, stereo microscope, PCR machine, the 'biosafety cabinets' (laminar air flow), HPLC, ultrasonic homogenizer, fermenter, Elisa reader, gel-doc system and the shaker incubator in department of Biological Sciences are provided with AC cabins.