

backup system. Red Hat Enterprise Linux 5 based portal has been configured and backup of user area of computing servers is scheduled through this portal.

E) Porting of user programs:

As per requirement of users, following parallel application packages are successfully ported on clusters:

WIEN2K_08 [computation of electronic structure of solids within density functional using Linearized Augmented Plane Wave (LAPW) method] is successfully ported on HPC cluster "Kshitij-1" using OPENMPI-1.3.3, Intel FORTRAN & C compiler version 9 and Intel Math Kernel Library version 10 on Red Hat Enterprise Linux 5.

CRYSTAL06 and CRYSTAL09 (General-purpose program for the study of crystalline solids) is successfully ported on DAEGrid cluster "Ramanujam".

DDSCAT version 6.1 (to calculate scattering and absorption of electromagnetic waves by targets with arbitrary geometries and complex refractive index using discrete dipole approximation) is successfully ported on HPC Cluster "Aryabhata" using MPICH2-1.0.5.

F) Electronic bulletin board:

Status monitoring of various activities is displayed on a plasma TV in Computer Centre. It is a web based presentation to display static and dynamic contents. It displays monitoring status of various clusters and usage of leased links dynamically in addition to static information like activities of Computer Centre, RRCAT web pages etc.

G) Training and hands-on sessions conducted in User Hall:

Workshop on "Extended X-Ray Absorption Fine Structure (EXAFS)" was conducted by Indus Synchrotrons Utilization Division on 9th March 2010.

Training with hands-on session on "MATLAB" was organized by Computer Centre from 17th May to 21st May 2010.

Training with hands-on was conducted by Computer Centre on "Microsoft Office Excel" for staff of Administration and Accounts from 31st May to 12th June 2010.

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I.2: Development of Information Systems at RRCAT

A) Enhancements to RRCATInfonet:

Various new features were added to RRCATInfonet, which include Indent preparation module, Civil Complaints module, Conference Management Software, Indus Operation Training manuals etc.

Web based Indent Preparation module along with Annexure loading can be accessed by indenting officers and division/ section offices after authentication. This module will help in reducing the data entry work related to indent preparation at IRPU, as the data will be entered electronically by indenter on RRCATInfonet. After receiving signed copy of indent, the staff in IRPU will transfer the data from RRCATInfonet server to IRPSU server for further processing. Annexure details can also be uploaded on the server for future reference. Storage of annexure details will help IRPU staff significantly while preparing the purchase orders by avoiding duplicate data entry work.

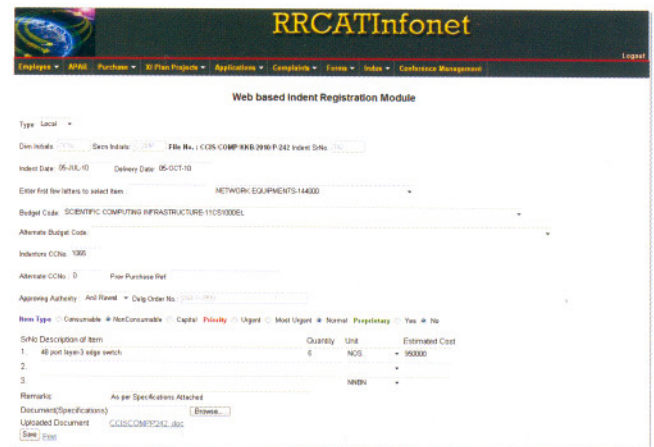


Fig. I.2.1: Web based Indent Preparation module

Civil Complaints module has been released for logging civil, water supply and sewerage related complaints. Automatic email is generated to the concerned authority after logging the complaint with a copy to the person logging the complaint.

Indus Operation Training Manuals were uploaded on Infonet server under various levels in PDF format. Project Monitoring Software, OASIS was enhanced to provide information based on categorization of indents on the basis of PO value. Option for printing month-wise list of certified telephone bills (Telephone Register) by the employees has also been added on RRCATInfonet.

B) Enhancements to Pay and Allowance Processing System:

Pay and Allowance processing system has been enhanced to provide Pay Bill Register (PBR) module, PRIS(I) module, yearly salary processing module, leave encashment register and yearly PF interest calculation module. This software has been integrated with Leave Software being used by Administration for leave recovery related to PRIS(O). Various reports were developed for generating Form 16, Form 24, PF ledger card and PBR printing on Oracle 10g platform.

PBR is a consolidated statement of financial year-wise complete pay details of employees with all types of entitlements, deductions, loans etc. along with various remarks and events. PBR is generated by extracting online information from Pay & Allowance Processing Software and Administration Information Software. Provision has been made in the software to automatically generate the remarks in case of promotion of employees and also to generate month-wise events from leave records of employees. Style sheet is used to control the layout at run time. Though output is generated in HTML format it can also be stored as PDF file. PBR printing module has been developed by using PL/ SQL and Report Writer of Oracle 10g Developer Suite.

C) Enhancements to various Information Management Software packages:

Promotion Proposal Software has been enhanced to maintain complete promotion trail of employees. Provision is made to store details like criteria (normal, outstanding) under which the promotion case was considered and status like promoted, deferred, absent etc. The software was also modified to provide option for CR printing of all the scientific and technical staff of RRCAT as per the 6PC norms, i.e. same duration of CR for all employees was enforced by the software and all reports being generated by the software were modified accordingly.

Personnel module was enhanced to provide various reports to Recruitment Section for the purpose of reply to RTI queries. Track Change Report is one such report which is used to generate information related to track change record for particular designation (with or without additional qualification) in specified duration in PDF or Excel format. Provision has been made to store designation-wise qualifying degree in the designation master table. Quarter System was re-designed to incorporate new norms received from DAE and all the reports to generate quarter waiting lists were modified.

As per the reservation policy of Government of India every department must maintain SC/ST roster. One software module has been developed in Oracle 10g for maintaining SC/ST roster of all the designations electronically.

D) Implementation of Conference Management Software for TC-2010:

The Conference Management Software was migrated to web based platform with Oracle 10g as back-end and Java Servlet as front-end. This software was used by the organizers of "Topical Conference on Atomic and Molecular Physics (TC-2010)" held during March 3-6, 2010 at RRCAT. The software helped in management of information related to conference details, participant details, topic wise abstract details, uploading of abstracts in Word and pdf formats etc.



Fig. I.2.2: Conference Management Software

The original software was modified for role based authentication to provide two levels of access to authorized persons on RRCATInfonet. Two access levels were provided to users - for Managing Conference (complete Read/ Write Access) and Viewing reports (Read Only Access). Various participant related reports, list of abstracts, ID cards of participants, TA settlement forms, Bio-data form and feedback form were printed using the software.

The software also has provision for paper posting under various categories like Papers/ Invited Talks/ Posters and can be used for management of Session details and Session contents. Accepted papers/ invited talks can be allotted to sessions for a particular time slot and date. Electronic submission of papers along with other information can be utilized to prepare a draft copy of the Abstract booklet/proceedings.

E) Enhancements to RRCAT Website:

A massive exercise has been completed to update technical contents of web pages of various Division/ Sections/ Labs on RRCAT website to reflect current developments and research activities. In addition to technical contents provided by content managers, contents related to newsletter, conference related announcements etc. were also update on the website.

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