



I.2: Development of Information Systems at RRCAT

A) Design, development and implementation of CAREER (Comprehensive Annual Report Evaluation with Encrypted storage & Retrieval) software:

CAREER is web based software to provide user friendly solution for submission, assessment and evaluation of employee's Annual Performance Assessment Report (APAR). This software has been designed, developed, implemented and released to all the scientific and technical staff on RRCATInfonet.

Due to the importance of time bound submission, assessment and evaluation of APARs for the organization, this software has provision to set time windows for time bound completion of: Filing of APAR by Individual Officer, Assessment of APAR by Assessing Officer, Countersigning of APAR by Countersigning Officer and Endorsement by Head of Division / Independent Section. Time window is set by Recruitment Section using the interface provided. The software is linked with HR database being maintained by Administration to fetch information of employees. All outputs are generated in PDF format and no browser/ page setup settings are required for printing, except that paper size should be set as A4. Context sensitive help and video help is provided in the software for APAR Submission.

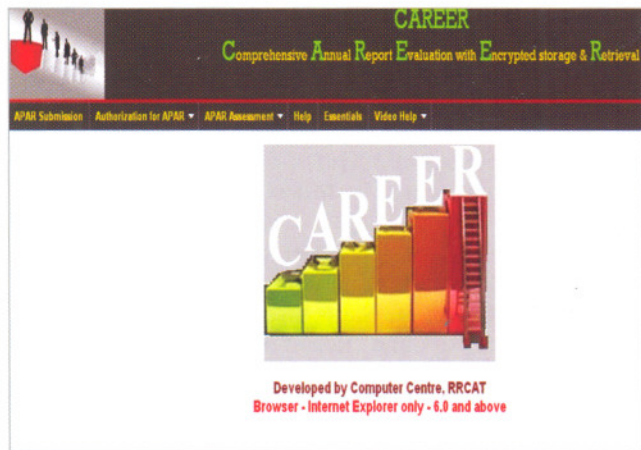


Fig. I.2.1: CAREER Software on RRCATInfonet

Members of Scientific Committee of RRCAT can authorize Assessing Officers and Countersigning Officers for assessing APARs in their respective Division/ Independent Section for all Scientific/ Technical Officers/ Technical Staff in the Grade Pay of ₹4800 & above. Similarly they can authorize Reporting and Reviewing Officers (for Technical Staff below Grade Pay of ₹4800).

Software Module for all Scientific/ Technical Officers/ Technical Staff in the Grade Pay of ₹4800 & above:

Two options are provided by the software for filling the APAR by Individual Officer within the time period set by Recruitment Section:

1. Employees can print Blank Part-I (Highlights of Work/ Achievements and Description of Work/ Achievements) and Blank Part-II (Plan of Work for the Next Year) and submit to Assessing Officer after filling them manually.
2. Employees can prepare and print APAR Part-I by using the software. Blank Part-II can be printed and filled manually for submitting to Assessing Officer. In case of on-line submission of APAR, data is stored in "Encrypted Form". Employee can only view their APAR details once they are 'Submitted for Assessment'.



Fig. I.2.2: APAR Submission (Part-I)

Assessing and Countersigning Officers can view the APAR details (Part-I) of employees (if submitted online) for whom s/he is Assessing or Countersigning Officer. The software has two provisions for assessment and evaluation:

- a. EAGLE Software - with no storage of assessment details on the server
- b. Encrypted Storage of Assessment details

EAGLE - Electronic Assessment Grade Logger and Editor software provides interface for calculation of grade and writing of remarks electronically. This software was used successfully during APAR period 2009-10. For APAR period 2010-11, required changes have been carried out in the software.

In case of Encrypted Storage, all assessment details related to "Staff Assessment Form", "Present Assessment" and "Report by the Countersigning Officer" are stored on the server in "Encrypted Form". The system is developed using Digital Signature Certificate (DSC) and standard encryption techniques based on Public-Private Key Cryptography for



authenticated and secured storage & retrieval of information. All Assessing Officers, Countersigning Officers and Head of Division/ Independent Section will need DSC for using full electronic version.

For APAR Assessment by Assessing Officer(s) – following two options are provided:

a. EAGLE – no storage of assessment details:

Assessing officer(s) must use the software for preparing and printing Part-III i.e. 'Staff Assessment Form' and 'Present Assessment'. The assessment data is not stored on the server. For APAR period 2010-11, required changes have been carried out in the software to provide one more row for assessment based on “Realization of targets set for the report period”, accordingly calculation part is also modified. The software is also modified to provide interface to enter “Remarks on Realization of Targets Set by the Officer” in addition to “General Remarks” while preparing “Staff Assessment Form”. In case of “Present Assessment”, Assessing Officer(s) can re-calculate the grade before printing.

b. Encrypted storage of assessment details:

Assessing Officer(s) can use the software for preparing and printing Part-III i.e. 'Staff Assessment Form' and 'Present Assessment' by using Digital Signature Certificate. On submission to Countersigning Officer, 'Staff Assessment Form' and 'Present Assessment' data is encrypted with public key of Countersigning Officer and then Assessing Officer cannot view or print those details.

For APAR Assessment by Countersigning Officer – following two options are provided:

a. EAGLE – no storage of assessment details

Countersigning Officer can print Blank Part-IV (Report by the Countersigning Officer), Blank “PRIS Individual Incentive” and Blank Format-1 (Communication of the APAR Grading). They can use the software for calculating grade (for verification) submitted by Assessing Officer(s).

b. Encrypted storage of assessment details:

Countersigning Officer can use the software for preparing and printing Part-IV i.e Report by the Countersigning Officer by using Digital Certificate Credentials. They can view data related to 'Staff Assessment Form' and 'Present Assessment' by decrypting it with own private key. He can print blank PRIS Individual Incentive proforma and blank Format-1 (Communication of the APAR Grading). On submission to Head of Division/ Independent Section (HoDIS), 'Staff Assessment Form', 'Present Assessment' and 'Report by Countersigning Officer' are encrypted with public key of HoDIS and then Countersigning Officer cannot view or print those details.

Head of Division/ Independent Section can view all the documents by decrypting them with his private key. HoDIS can view APAR (Part-I), 'Staff Assessment Form', 'Present Assessment' (Part-III) and 'Report by the Countersigning Officer (Part-IV)' of all employees under their Division/ Independent Section.

Software Module for Technical Staff below Grade Pay of ₹4800:

In case of Technical staff, the 'Assessment by the Reporting Officer' related calculations have been made available digitally, to ease out the task of evaluation of grade. The evaluation process became more convenient by simple mouse clicks in comparison to the paper based procedure. This software module has been designed, developed and released to users.

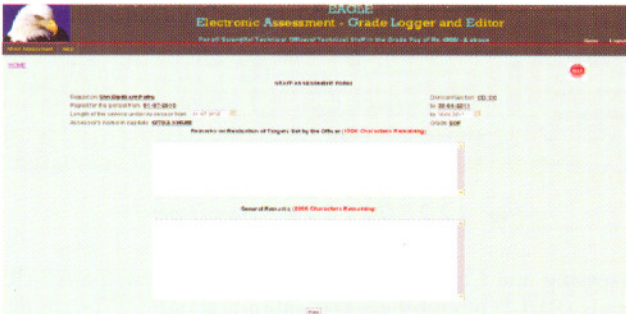


Fig. I.2.3: EAGLE – Staff Assessment Form (Part-III)



Fig. I.2.4: EAGLE – Present Assessment (Part-III)



Following options are provided for time bound assessment of APARs:

a. APAR Assessment by Reporting Officer:

Reporting Officer must use EAGLE software for preparing and printing Part-III i.e. 'Assessment by the Reporting Officer'. Assessment data is not stored on the server. Reporting Officer can re-calculate the grade before printing.

Fig. I.2.5: EAGLE – Assessment by Reporting Officer

b. APAR Assessment by Reviewing Officer:

Reviewing Officer can use EAGLE software for printing Blank Format-1 (Communication of the APAR Grading). They can use the software for calculating grade (for verification) submitted by Reporting Officer.

B) Development and deployment of On-line Submission of Applications for RRCAT-Ph.D. Programme- 2011 on Internet:

Web based software has been designed, developed and deployed for on-line submission of applications on Internet for RRCAT Ph.D. Programme - 2011. The software is developed using open source tools like PHP version 4 and MySQL version 5. One Linux server has been configured with CentOS (64 bit) version 5.5 to deploy this application over Internet. MySQL database is configured with open source GreenSQL firewall to protect the database from various known threats.

The software has two steps for registration process for candidates applying on-line. Based on the minimum information filled by applicants in first step, activation link is sent to them through email.

Fig. I.2.6: On-line Application Form for RRCAT Ph.D. Programme-2011.

On activation by the applicant, s/he will be required to fill details including qualifying degree, marks obtained, GATE/NET/ JEST score/ rank etc.. The software also has provision to upload photograph and certificates by the applicants.

Application forms have been developed using PHP, HTML and Javascript. The software was tested thoroughly before deployment using SQL injection tests.

Data Pump procedure is written in java for data consolidation with Oracle 10g and MySQL databases. Data is synchronized between Internet database server (MySQL) and internal database server (Oracle 10g). A software module has been developed for Recruitment Section for maintaining information related to applications for RRCAT Ph.D. Programme. This software provides interface for entry of applications which were not filled on-line, instead paper copy was received. Call letters were generated for applicants by using this software.

Administrative interface was developed and deployed on RRCATInfonet for viewing discipline-wise (Physics/ Chemistry/Life Science) applications submitted from Internet



or entered by Recruitment Section. The software was used for screening of applications on the basis of eligibility criteria like M.Sc. percentage/ marks, age etc. Information related to screened-in candidates was generated in excel format for Ph.D. interview committees. The software was also used for sending call letters by email to screened-in candidates. Assessment sheet for candidates called for interview was generated in excel format. Software also has provision for sending emails to final selected candidates after interview containing acceptance link, using which they can accept the offer on-line. PDF file of selected candidates was generated for RRCAT website.

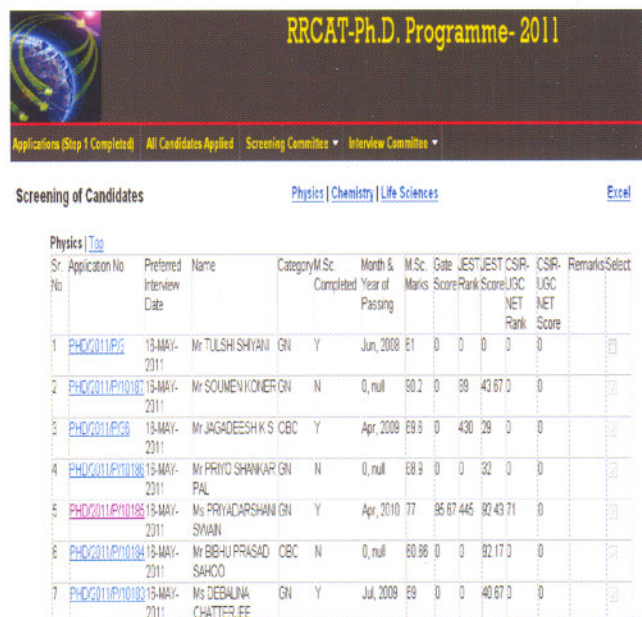


Fig. I.2.7: Administrative interface for RRCAT Ph.D. Programme-2011

Provision has also been made in the software for viewing the status of application (on Internet) on the basis of application no. and date of birth.

This software was used successfully for submission of application on-line over Internet and further processing.

C) Web based module for viewing Service Book Details on RRCATInfonet:

A web based module is developed and deployed for viewing Service Book Details by employees in PDF format under authenticated access on RRCATInfonet. Employee can view his/ her service book details like Bio-data, Pay Record History with Promotion Trail, Leave Credit / Availed and details of LTC Availed in PDF format. Data displayed is retrieved from on-line RRCAT Information System and on-line Allowance Processing System. IText open source library

has been used for creating non-modifiable PDF files of service book details. Administrative interface has been provided to Chief Administrative Officer, Administrative Officer-III and Assistant Personnel Officer (Establishment) for viewing service book details of all employees.

D) Enhancements to various Information Management Systems:

CHSS Beneficiary database being maintained by Administration has been linked with Information Management Software being used in Medical Centre, thus facilitating single point management of CHSS beneficiary details. CHSS data will be maintained and updated by Administration, whereas staff at Medical Centre can only view the details. Linking of two databases will ensure that only valid CHSS beneficiaries can avail the medical facility.

Promotion Proposal module was enhanced for printing APAR of Administrative and Auxiliary staff as per various formats. Interface has been developed for Recruitment Section to set time windows for Scientific and Technical staff for APAR submission, assessment and printing.

Roster module was developed and implemented for recruitment/ promotion roster as per the roster chart for various posts (direct recruitment, administrative & auxiliary promotional posts, SC/ST posts etc.). This module was required to assist in ensuring that recruitments are done as per the reservation policy guidelines of the government.

Purchase Accounts software has been enhanced with provision for maintaining and monitoring data of Letter of Credit and Wire Transfer related correspondence with involved parties. Provision has been made in the software to maintain agency commission, amount/ percentage of amount for LC to be established, bank details, bank charges in foreign country, mode of dispatch, insurer details etc. Various reports like LC opening letter, covering letter for LC and Form A1 for LC can be generated. Pre-formatted Wire transfer request, Acceptance letter and Form A1 for Wire transfer can also be generated. Development of this module will help Purchase Accounts to get rid of tedious job of preparing repetitive documents and manual data errors.

A module has been developed for IRSU for management of rejection details related to capital, non-consumable and consumable items received. Complete details of rejection and reason for discrepancy are captured and maintained in the database. Details of rejected items with quantity and date can be generated for various types of registers.

Reported by:
Alpana Rajan (alpana@rrcat.gov.in) and Anil Rawat