

वार्षिक रिपोर्ट ANNUAL REPORT

14TH FEBRUARY, 2018



भारतीय रेल यांत्रिक एवं विद्युत अभियंत्रण संस्थान
जमालपुर-811214

INDIAN RAILWAYS INSTITUTE OF MECHANICAL &
ELECTRICAL ENGINEERING, JAMALPUR-811214

AN ISO 9001:2008 CERTIFIED INSTITUTE

On behalf of IRIMEE, I extend a very warm welcome to all the distinguished guests and dignitaries from the Railway Board and the Zonal Railways. I also take this opportunity to welcome the senior retired officers. It is my proud privilege to present here the ninety first Annual Report of the Institute before this distinguished gathering.

Ladies and Gentlemen, on this Annual Day, I now present a review of our performance during the year 2017-18.

Initially attached to the East India Railway (EIR) Locomotive Workshop at Jamalpur, the Technical School was set up in the year 1888 to impart training to Artisans and Trade Apprentices. The administrative control of the Technical School was transferred to the Railway Board on 1st April, 1974, and was renamed as The Indian Railways Institute of Mechanical and Electrical Engineering (IRIMEE). IRIMEE has the distinction of being the first Centralized Training Institute (CTI) set up on Indian Railways for in-house training of its officers and staff.

The IRIMEE budget outlay and actual expenditure for the last financial year and the current financial year is as under:

Demand (Revenue)	Outlay(Rs.)		Actual expenditure (Rs.)	
	2016-17	2017-18	2016-17	2017-18
02-413	21.38 Cr	19.81 Cr	20.22 Cr	15.54 Cr (up to Dec'17)
12K-517 (SCA stipend)	1.61Cr	2.45 Cr	2.41 Cr	1.23 Cr (up to Dec'17)

TRAINING ACTIVITIES AT IRIMEE

Our institutional tasks can be grouped into the following broad spectrum of categories:-

- A. Grooming of IRSME probationary officers: The probationers are attached to IRIMEE for a total of 78 weeks, which consists of 42 weeks of Institutional Training and balance 36 weeks of training in Open Line Railways, production units of Indian Railways and important institutions.
- B. Imparting introductory training of one week to probationary officers of other services of Indian Railways viz. IRSE, IRSEE, IRSS, IRSSE, IRTS.
- C. Conducting Professional courses for serving officers of Mechanical department and customized short term courses for other organizations.
- D. Imparting practical training to Special Class Railway Apprentices and arranging BE(Mech) Degree course at IRIMEE through BIT, Mesra Ranchi.

- E. Organizing outstation seminars and workshops on the subject of current importance to the Railways.

The total number of officials trained in various categories in professional courses is tabulated below:

Category	2015-16	2016-17	2017-18 (up to Jan-2018)
In-Service Officers	161	234	308
IRSME Probationers	64	51	67
Other Service Probationers	193	170	45
Supervisors	137	367	689
Grand Total	555	822	1109

MANDATORY COURSES

- ◆ **Gr 'B' Induction Course (BIND):** IRIMEE conducts a ten week induction course for Group B officers. The aim of this course is to expose the officers to the entire gamut of technical working of Mechanical Department of Indian Railways. They are also assigned project work to be completed within the duration of the course. Four such courses were conducted during the year. The total participation of officers for all courses put together was 54.
- ◆ **Section Engineer Training (SET) for Direct recruit Supervisors:** IRIMEE conducts a four week course for the direct recruit mechanical Supervisors to give them exposure to the working and technology used in Railways. Nine such courses were conducted during the year. The total number of trainees who attended till date for all courses put together is 491.
- ◆ **Chemist and Metallurgist course for Direct recruit Supervisors:** One thirteen weeks course conducted by IRIMEE in this year for the Direct Recruit Chemist and Metallurgist Supervisors to give them exposure to various materials, manufacturing and maintenance practices followed in Railway system and also to upgrade their knowledge in testing and failure analysis. Second of such course is in progress. The total number of trainees attended till date for all courses put together was 51.
- ◆ **Course for Sr. Chemist and Metallurgist (SCMS):** A four week course for Senior Chemist and Metallurgist Supervisors is conducted by IRIMEE to give them details about the new materials used in Railways, latest manufacturing and maintenance practices adopted by Railways and also to refresh their knowledge. A total of 13 trainees attended the course.

PROFESSIONAL COURSES

A number of need based courses of one week duration is provisioned for officers. This provides an opportunity to the in-service officers to update their knowledge and also to serve as a refresher for some officers.

- ◆ **Course on Planning and Executing Service Contract in Coaching Depots:** As per the directives of MRS, IRIMEE has planned for courses on Service contracts to train the officers, supervisors and clerical staff dealing with such contracts at field level across all Zonal Railways. The first such course was organized at IRIMEE from 23.11.2017 to 24.11.2017. The course was attended by total 26 Officers and Supervisors covering the divisions ALD, JHS, & AGC of NCR, LJN & BSB of NER and MGS, DNR, SEE, SPJ & DHN of ECR. The Second course was organised at Eastern Railway headquarters, Kolkata and the course was attended by total of 51 Officers, Supervisors and clerical staff covering the divisions HWH, SDAH, ASN & MLDT of ER, CKP, KGP, RNC, ADA of SER and TSK, LMG, KIR, RNY, APDJ of NFR.
- ◆ **Course on LHB Coach Maintenance:** Training on LHB Coach for CRSEs was organized at Lower Parel, Mumbai. The course was attended by CRSEs of Zonal Railways, Officers from Western Railways, RDSO and RCF and IRIMEE Faculty. Besides theoretical training, a spot study of FIAT Bogie Shop of Lower Parel was also organized.
- ◆ **IRIS Course:** A 2 days Awareness Course on IRIS standards was conducted by IRIMEE from 03.04.17 to 04.04.17 at RWF/YNK. The course was well attended with a total of 32 participants from RDSO, ICF, RCF, DLW, DMW, RWF, RWP, MCF and Jamalpur Workshop.
- ◆ **Workshop on ISO 3834:** I am glad to report that the workshop on ISO 3834 at IRIMEE on 25/5 & 26/5 was a big success with participation by 22 officers and 42 supervisors from the Production Units and Workshops. Excellent presentations were made by Team ICF lead by CME/Plg, key personnel from SCR-Raynapadu & Lallaguda Workshops, WR-Pratap Nagar workshop and IRIMEE. A large number of workshop have received ISO:3834 certified for various sections.
- ◆ **Courses on Welding Technology and Corrosion:** Two Courses on Welding Technology and Corrosion, one for Officers and one for Supervisors organized at IRIMEE. A total of 8 officers and 44 supervisors attended the course.
- ◆ **Course on Train Lighting & Air Conditioning :** A Course on Train Lighting for JS/SS/JAG Mechanical Officers was organized. 11 Officers and 04 Supervisors participated in the course. The following topics were covered:

- Basics of Refrigeration and AC systems
 - Practical aspects of AC maintenance based various SMI's of RDSO,
 - LHB coach AC and TL layout (benefits of EOG, principles of stepdown transformers, rectification & IGBT based battery charger, various protection systems
- ◆ **Course on Tenders & Contracts:** Two course on Tenders & Contracts has been conducted at IRIMEE/JMP with 37 participants. In addition to IRIMEE faculty experienced field officers including vigilance were invited as visiting faculty to deliver lectures.
- ◆ **Course on Environment & House Keeping Management:** Two four day courses on EnHM (Environment & House Keeping Management) for mechanical officers of different zonal railways were conducted during the year. Legal aspects related to Solid Waste Management, Collection Transportation & Segregation of Waste, Treatment of Waste, and Issues related to Contracting out E&HM activities, Awareness about Green House Gases, RWH, Energy conservation, Energy from Waste, Effluent Treatment were covered in the course. Sri A. K. Tewari, Principal ED, EnHM/Railway Board was present at IRIMEE on 12.10.17. He addressed the officers on salient features of the Standard Bidding Documents and took a feedback on the course content in general.
- ◆ **Refresher course for QA wing of RDSO:** Three refresher course covering special topics as required by the QA wing of RDSO was organized. Officers and Twelve Supervisors of RDSO QA wing attended the course. Inspection and Testing of Rubber, Plastics & Composites, Steel making, Refining, Heat Treatment, Casting Defects, Sampling Aggregates & Discrete items as per IS:4905, Welding Inspection & Testing, NDT, Jigs & Fixtures, Preparing Check Sheets were covered in the course. A total of 54 participants including Officers and Supervisors were trained.
- ◆ **Safety Seminar:** The Chief Commissioner of Railway Safety, Shri S. Nayak (CCRS/Lucknow) was all praise for IRIMEE for excellent conduct of the Safety Seminar at IRIMEE from 24th to 26th April 2017 in which 14 Participants attended the course. Along with the CCRS himself, 5 CRSs and 8 Dy CRSs attended the seminar. Officers specially invited from RDSO, ICF and RCF delivered lectures on topics like Design features of ICF coaches including self-propelled coaches, Crashworthiness, Design features of LHB coaches including Bogie Design, Vehicle Dynamics & Rail-wheel interaction, Wagon Design, Diesel loco brake systems, Accident Investigation, Adoption of fire Safety measures in Rolling Stock, Rolling stock for Metros and high Speed. The CCRs said that by attending such courses at the CTIs that he wanted to send a strong message to the senior Railway Officers that nobody is beyond training. He also mentioned that during his interaction with railway officials at field level he found that percolation of Instructions in the field and the knowledge level leaves much to be desired.

- ◆ **Course on Diesel EMU Maintenance Technology and High Horse Power Diesel Loco:** Two courses each were conducted on DEMU maintenance technology and HHP Diesel locos, with a participation of 33 trainees.
- ◆ **Diesel Course for RITES:** A two week tailor made course on Operation & Maintenance of WDS₆ and WDG_{3A} Locomotives for Managers of RITES, O&M Divisions, Gurgaon was organised in December 2017. A batch of five managers attended the training. The course was well received and there is a demand for one more course which is planned in April'2018.
- ◆ **Course on Power Electronics and Mechatronics:** Power Electronics and Mechatronics have been identified as a thrust area of Mechanical Department and Railway Board has directed IRIMEE to conduct course on these subjects. Accordingly, regular courses on Power Electronics Control System and Mechatronics are being conducted at IRIMEE. These courses cover power electrical systems, motors and drives as well as pneumatic, hydraulic, PLC and automation system used in Railways.
- ◆ **Course on Capital Budgeting & Investment Decision:** One week course on Capital Budgeting & Investment Decision was conducted with Five officers from zonal railways and 12 IRSME probationers at IRIMEE.
- ◆ **TOT Course at Nair:** A series of basic courses for enhancing trainer skills for both Gazetted and Non-Gazetted faculty was organized by NAIR. Taking advantage of the same eight IRIMEE faculties has attended these courses.

TRAINING OF IRSME PROBATIONERS

The training of freshly recruited Probationary Officers of the Indian Railways Service of Mechanical Engineers (IRSME) is centralised at IRIMEE. The probationary training comprises of:

- a) Institutional training at IRIMEE, NAIR and other CTIs that include IRICEN, IRIEEN, IRITM and IRISSET.
- b) Training at major Railway organizations such as DLW, DMW, RCF, ICF, RWF, CLW, RDSO, CAMTECH and COFMOW.
- c) Training at various field units in zonal railways such as diesel sheds, coaching depots, divisional offices & control offices, freight yards and ROH Depots.
- d) Training in manufacturing and maintenance practices at various Diesel, Carriage and Wagon Workshops of Indian Railways.

- e) **Communications course at MDI Gurgaon and IRIMEE** : IRIMEE developed an in-house Course on Communication Skills for IRSME probationers based on the experience gained from the course on the same topic conducted at MDI Gurgaon earlier. Sessions were taken by Director, SP/WMT, SP/RST and AP/MIS. The participants felt that in most aspects the IRIMEE course was better than the one at MDI as it was more oriented towards Railway requirements.

During the 10 months beginning from April 2017, 67 IRSME probationers have successfully completed their training. This comprises of 01 SCAs of 2009, 01 of SCAs 2010, 25 of SCAs 2011 Batch and 40 ESE recruits of IES-2014 Batch.

At present 89 IRSME probationers, spread across SCA-2011, SCA-2012, SCA-2013 ESE-2015, ESE-2016 batches are undergoing training.

Shri D. Jaswant Kumar, Probationer (IES-2016) got second position at NAIR in Foundation Course. Shri Sourav Modi (SCRA 2012) got second position at NAIR in Induction Course conducted by NAIR.

TRAINING OF SPECIAL CLASS APPRENTICES

The training of Special Class Apprentices is being conducted in accordance with the scheme of collaborative Bachelor of Engineering Degree Programme with Birla Institute of Technology (BIT), Mesra, Ranchi. As part of the MoU between IRIMEE and BIT, regular teaching faculty from BIT, Mesra come to IRIMEE as visiting faculty. Workshop training is mainly given in Jamalpur Workshop. The MoU with BIT Mesra was signed in 1999 and the relationship with BIT Mesra has continued since then. Till now thirteen batches have passed out under the arrangement, and three more SCRA batches (2013 to 2015) are under training.

The batch-wise distribution of SCAs is as under:

SCRA batch (as per UPSC Exam)	No. of SCAs			BIT Semester
	Boys	Girls	Total	
2014	21	2	23	8th
2015	6	0	6	6th

The total number of SCAs under training at IRIMEE is 29 at present.

IRIMEE is unique among CTIs as it caters to the training needs of posted officers, Probationary Officers as well as Special Class Railway Apprentices for whom training in undergraduate mechanical

engineering studies is provided. In order to make the training of SCAs more topical, and to expose the SCAs to industrial practice outside the Indian Railways.

SCAs have to submit a major engineering project in their final year. IRIMEE has tried to encourage them to do these projects on topics of relevance to Railways. This year all 29 of the final year batch SCAs have been assigned a project. The projects are executed under a faculty guide from IRIMEE and BIT.

The project topics currently taken up by the probationers are as follows:

Group	Topic of the Project
1	Utilization of Eccentric Mass Geared System
2	Autonomous track crack detection system
3	Offshore wave energy generator
4	Design of Rail Road Breakdown Crane for Faster Accident Response
5	Microprocessor Based Smart hydraulic lifting crane
6	Automatic control vehicle balance system

OTHER TRAINING ACTIVITIES

Special Adventure Course at HMI, Darjeeling: To inculcate team spirit, adventure and physical fitness amongst the young Special Class apprentices ,a fortnight long course on Mountaineering is being organised at Himalayan Mountaineering Institute.15, Special Class Apprentices of 2013 Batch (14 boys and one girl) were deputed for "Special Adventure Course", at the Himalayan Mountaineering Institute, Darjeeling (HMI) from 13th to 27th April 2017. The course included Basic Mountaineering, Rock Climbing, Kayaking, River Crossing and Trekking. The trek started from Darjeeling and reached up to Shingla .Final trekking was done up to height of 10,500 feet. Excellent trekking Gear was provided by the Institute. Various competitions as Cooking, Indoor/Outdoor Rock Climbing, Cross Country Race, Patrol and River Crossing were organized by the Institute, in which SCAs won 3 Group Medals and 2 Individual Medals. The next batch of SCAs shall be sent in April'2018.

Advance Welding Course at FTI, Bangalore : To improve the technical knowledge of SCAs in welding, 15 SCAs of SCRA 2013 Batch was sent on Advanced Welding Training Course at FTI, Bangalore in March'2017.

Advance Hydraulics and pneumatics Course at FTI, Bangalore : To improve their technical knowledge SCAs of 2014 batch were deputed for a course on "Advance Hydraulic and Pneumatics" at FTI/Bangalore. SCRA 2013, 2015 Batches were sent last year.

DIGITAL INITIATIVES

IRIMEE has developed training video films on topics relevant to workshop Technology, Rolling Stock, Diesel, Disaster Management, Metallurgy & Chemistry. 31 videos have been developed with in- house effort involving faculty, IRSME probationers and SCAs. These are hosted on irimee.ir youtube channel and a link is provided on the IRIMEE website. This enables self-learning material to be available to officers and supervisors which can be accessed at their convenience.

To make self-learning a pleasure in the model rooms AT IRIMEE QR codes have been provided on the cut sections, components and working models. Trainees can access video films on youtube and text material on IRIMEE Website using their mobile

For the first time IRIMEE participated in Indian Railway Equipment Exhibition from 11th Oct to 13th Oct '2017 in Pragati Maidan, New Delhi. Training Initiatives of IRIMEE especially digital training were demonstrated. There was keen interest shown by the visitors in the training modules developed.

MAJOR EVENTS

IRIMEE had the privilege of the visit of Member Rolling Stock Sri Ravindra Gupta on 16th June and 13th December, 2017 and the visit of AMPU Sri R N Mishra on 18th August, 2017. GM/ER during his annual inspection of Jamalpur shops on 19.12.2017 found time to visit IRIMEE. He was appreciative of the good work being done at IRIMEE. He addressed the trainee officers and announced an award to Team IRIMEE.

On behalf of IRIMEE I am thankful to Board for organising an audience with Hon'ble President of India for Railway Probationers including 31 IRSME Probationers on 10th of January, 2018. This is

only the second time that IRSME Probationers got opportunity to have an audience with the Hon'ble President and have a group photo. This should be institutionalised and planned twice a year so that all batches of Probationers get covered.



IRSME & IRSSE Probationers with Chairman Railway Board and Member Staff at Rashtrapati Bhawan with Hon'ble President

As desired by M (RS), IRIMEE had conducted an follow up audit in Dec'17/Jan'18 of all 10 STCs on Indian Railways further to the last audit conducted in Dec'16/Jan'17. All STCs have shown improvements in most of the parameters taken up for evaluation. The 31 parameters were classified under four heads Standard of training, Training infrastructure, Training amenities and Support facilities.

A study on the feasibility of extending overall periodicity of overhauling of CTRB of Wagons has been submitted to Wagon Directorate .

ACKNOWLEDGEMENTS

I am thankful to CRB for his keen interest in the functioning of CTIs. With his approval there has been an enhancement in the powers delegated to the heads of CTIs. I am thankful for approval of two proposals for in works in the PWP 2018-19 -for improvements to IRIMEE & Hostels and sanction of 8 staff quarters. With his efforts Probationers' problem of accommodation in outstation training has been addressed by giving powers to CTI to book hostel accommodation through IRCTC where Railway accommodation is grossly short.

I am thankful to MRS sir for his constant support, guidance and recognition of good work done in the Institute. The course on IRIS, ISO-3834, Refresher course for QA Directorate supervisors, Audit of STCs, Course on LHB, Service Contracts were especially organised as per his directives. He has also encouraged IRIMEE to take up e-learning initiatives. A study on improvement in Quality of Welding & Welding related training is under way and the report has been recently submitted .

Addl. Member ME & PU and Principal ED/EnHM have been supportive.

I am thankful GM/ER and HQrs Officers of ER, CME and his team, CWM and his team for contributing to the effective functioning of IRIMEE.

Last but not the least I must thank CMEs for sparing officers for various courses and the Trainee Officers for their active participation.

Thank you.

Jamalpur

February 14, 2018

(GajananMallya)

Director/IRIMEE

VISITING DIGNITARIES

Railway

- ◆ Shri Ravindra Gupta, Member (Rolling Stock)
- ◆ Shri Harindra Rao, GM/ER
- ◆ Shri S. S. Nayak, CCRS & his team of 5 CRSs and 8 DyCRSs.
- ◆ Shri R. N. Misra, AM(PU)
- ◆ Shri Ravinder Gupta, CME/ER
- ◆ Shri S. C. Sengupta, Retd GM/ER
- ◆ Shri P. C. Sen Ex CMD Burn Standard

Visiting Faculty

- ◆ Shri D. K. Singh, Retd CRS/S.C.Region
- ◆ Shri A. K.Tiwari, Principal ED EnHM
- ◆ Shri Pradeep Kumar, CMPE/NR
- ◆ Shri Sishir Dutt, CME/Plg/ICF
- ◆ Shri Hamid Akhtar, ED/Testing/RDSO
- ◆ Shri R. C. Rai, Retired FA&CAO/NER
- ◆ Dr. Amitesh Kumar, Associate Professor, NIFFT, Ranchi
- ◆ Shri Baijnath, GM/QC, Frontier Alloy Pvt. Ltd., Kanpur
- ◆ Shri. S. Kartikeyan, Consultant/CII
- ◆ Shri. Tapas Kumar Bhattacharya, Prof Architecture, Jadavpur University
- ◆ Shri Piskar Singh, Medha
- ◆ Shri Girish Joshi, Bosch Rexforth India
- ◆ Shri Srinivasan, IRIS Consultant
- ◆ Shri. Gautam Banerjee, Sr. Training Faculty, ESAB Welding Institute, Kolkata
- ◆ Shri. Santi Brata Dutta, Controller of operations, IIW, Kolkata
- ◆ Shri. Manas Kamal Sen, Technical Expert and Lead Auditor, IIW, Kolkata

FACULTY POSITION#

GAZETTED FACULTY

Grade	Sanction	Actual	Vacancy
HAG	1	1	0
SAG	3	3	0
SG/JAG	6*	6\$	0
SS	3	3	0
JS	9	4	5
TOTAL	22	17	5

* One Post is work-charged

\$ Two JAG posts are downgraded and operated as SS posts



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