SCHOOL OF WELDING

TRAINING CALENDAR

2011 - 2012

WELDING RESEARCH INSTITUTE
BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI - 620 014, INDIA.

ONE STOP SOLUTIONS FOR MATERIALS JOINING

WRI Offers...

Consultancy Services in the areas of

- Equipment developments
- Consumable & Power Source testing
- Process & technology development
- Metallurgical investigation
- Repair and reclamation
- Distortion control
- Structural integrity analysis
- Weld audit for quality and productivity improvement
- Remnant life estimation
- Condition assessment, etc.

So far...

About 3200 consultancy services have been completed for 290 organisations covering Heavy Engineering, Power, Petro Chemical, Transport, Metal Processing, Defence, Space, Oil, Ship Building, Consumable & Welding Equipment, Electronics industries, etc.

For details contact

CONSULTANCY DIVISION
WELDING RESEARCH INSTITUTE
BHEL, TIRUCHY - 620 014.

Phone : +91 - 431 - 2577132 / 2577207

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WELDING RESEARCH INSTITUTE

Bharat Heavy Electricals Limited, Tiruchirappalli - 620014

Training Calender for the Year 2011 - 2012

Sl. No	Course Title	Course Code	Course Duration	Course Fee (Rs.)**	Course Fee with S.T (Rs)
1.	Welding & Inspection	STC - 387	23 05 2011 - 28 05 2011	18000	Course Fee + Applicable Service Tax as per G.O.I. Rules
2.	Certified Welding Inspectors *	CWI - 71	07 06 2011 - 18 06 2011	34000	
3.	Welding & Inspection	STC - 388	27 06 2011 - 02 07 2011	18000	
4.	Certified Welding Inspectors *	CWI - 72	12 07 2011 - 23 07 2011	34000	
5.	Welding & Inspection	STC - 389	01 08 2011 - 06 08 2011	18000	
6.	Ultrasonic Testing - Level II *	NDT - 115	17 08 2011 - 27 08 2011	31000	
7.	Welding & Inspection	STC - 390	05 09 2011 - 10 09 2011	18000	
8.	Certified Welding Inspectors *	CWI - 73	19 09 2011 - 30 09 2011	34000	
9.	Welding & Inspection	STC - 391	10 10 2011 - 15 10 2011	18000	

Sl. No	Course Title	Course Code	Course Duration	Course Fee (Rs.)**	Course Fee with S.T (Rs)
10.	Radiograpic Film Interpretation	NDT - 116	18 10 2011 - 22 10 2011	15000	Course Fee + Applicable Service Tax as per G.O.I. Rules
11.	Welding & Inspection	STC - 392	31 10 2011 - 05 11 2011	18000	
12.	Certified Welding Inspectors *	CWI - 74	15 11 2011 - 26 11 2011	34000	
13.	NDT Techniques	NDT - 117	06 12 2011 - 10 12 2011	15000	
14.	Certified Welding Inspectors *	CWI - 75	20 12 2011 - 31 12 2011	34000	
15.	Welding & Inspection	STC - 393	02 01 2012 - 07 01 2012	18000	
16.	Certified Welding Inspectors *	CWI - 76	07 02 2012 - 18 02 2012	34000	

*Programme includes examination

** Service tax is to be paid extra as applicable as per GOI Rules

All the programmes are "NON RESIDENTIAL" only

Course fee does not include Boarding & Lodging

ABOUT WRI

Welding Research Institute, Tiruchirappalli was established by the Government of India with assistance from UNDP under the aegis of Bharat Heavy Electricals Limited, Tiruchirappalli. This institute is an "industry oriented research centre" to promote the application of welding technology in Indian industries.

Objectives:

Recognising the importance of well trained manpower in effective implementation of appropriate welding technology, WRI has rightly emphasised on human resource development as one of its major objectives.

School of Welding:

The school of welding at WRI was established in 1975 to provide education and training in welding and allied field like NDT. The school of welding is conducting three tier training programmes for engineers, technicians and artisans. Apart from comprehensive basic training courses, short term courses on specialised topics are conducted regularly. Further, 'tailor made' courses designed to meet the specific requirements of sponsoring organisations are conducted at WRI. Close contact with industry assures that the training is not only relevant to the current needs of the industries but also to prepare them for future developments.

Faculty:

The faculty is drawn from well qualified and experienced research staff in each specialised area of welding. In addition to the Institute's research staff, experts from other organisations are also invited. The courses are designed such that the trainees could benefit from their rich experience by group discussion and interaction between faculty and participants.

Facilities:

WRI has complete range of conventional and modern welding facilities like laser welding, friction welding, flash butt welding, projection welding, resistance seam welding, plasma spray system, synergic Time and twin MIG welding, AC/DC programmable TIG welding, multipurpose column & boom type SAW, tandem submerged arc welding, AC/DC variable Square wave SAW, portable spot welding, MIAB welding etc. It has a metallurgical and mechanical testing laboratory, well equipped with x-ray stress analyzer, thermal cycle simulator, implant test equipment, SEM, low temperature impact (CVN) testing equipment, fatigue testing equipment Creep Testing equipment etc. The NDT laboratory is equipped with modern testing facilities besides conventional X-ray, gamma ray, fluoroscopy and UT facilities. The school of welding has 3 class rooms fitted with up-to-date audio visual aids and a full fledged training workshop.

The institute's library with more than 10,000 volumes and 35 periodicals on welding and related subjects is accessible to the trainees. A hostel with moderate facility is available.

Recognition:

Since inception WRI has so far conducted 80 basic courses, 386 short term courses, 70 Certified Welding Inspector Courses, 171 Special short term courses,114 NDT courses and Seven International Training Programmes on Welding Technology for customers from India and abroad. A total of about 15000 engineers and supervisors have been trained by WRI till date. Almost every major industry in both public and private sectors has made use of WRI to train their welding personnel. WRI has been recognized by Indian Boiler Board to certify welders as per IBR.

INFORMATION TO PARTICIPANTS

Location of WRI

Welding Research Institute is located in the industrial complex of BHEL. Tiruchirappalli which is 15 kms. from Tiruchirappalli town on the Tiruchy - Thanjavur Highway.

How to reach Tiruchirappalli?

Tiruchirappalli (also known as Tiruchy) is about 320 Kms. south of Chennai. Number of trains and luxury buses from Chennai Egmore railway station operate throughout the day and night. The travel takes 6 to 8 hours. Tiruchirappalli is also connected by overnight train from Chennai, Bangalore and Cochin. Tiruchirappalli is also connected by AIR.

Pickup

A "BHEL" bus will be available at Tiruchirappalli railway junction on the day of inauguration morning around 05.30 hours and the previous day evening around 21.00 hours to pickup participants and drop them at WRI hostel.

Conveyance

Taxi and auto rickshaws normally charge Rs. 350/- and Rs. 250/- respectively to reach WRI hostel from Tiruchirappalli junction / bus stand / airport. Regular buses ply from the central bus stand near the railway junction and Chattram bus stand near Main Guard Gate.

WRI Hostel

All the courses are "NON-RESIDENTIAL". However, a/c and non a/c hostel accommodation with common amenities is available at nominal charge on first come first-served basis, subject to availability. Internal transport between hostel and WRI will be provided freely.

Hotels

Participants may make their own arrangements for stay in Tiruchirappalli. A number of good hotels are available around the central bus stand / Railway Junction at reasonable tariff. Participants will have to arrange for their own conveyance, between the place of stay and WRI.

Course Timings

WRI functions 6 days a week from 08.00 hours to 16.30 hours, Sunday being the weekly holiday. The session timing will be from 8.45 hours to 16.00 hours. Participants are requested to be present at WRI by 8.30 hours to complete the registration formalities on the inauguration day.

Climate

Tiruchirappalli has moderate to hot climate throughout the year. The minimum and maximum temperature range from 25 °C to 40 °C. Light winter clothing is sufficient during November to January.

SPECIMEN COURSE ENROLMENT FORM

Course title :
Course code :
Course duration :
Name of candidate:
Designation :
Organisation :
Qualification :
Relevant experience :
Payment details
Amount (Rs)..... DD. No..... Dt.....

Hostel accommodation required : Yes / No
Address for communication :

Phone No :
E-mail :
Fax No. :
Place :
Date :

Signature of sponsoring
authority with seal

* Hostel accommodation will be provided subject to availability

Note : 01) For all our courses, participants are required to submit 2 Nos. of latest passport size colour photos along with copies of qualification and experience certificates.

02) The above format may please be filled in, sent along with a formal letter for admission to the respective courses, to:

THE PROGRAMME OFFICER
SCHOOL OF WELDING
WELDING RESEARCH INSTITUTE
BHARAT HEAVY ELECTRICALS LIMITED
TIRUCHIRAPPALLI - 620 014
Ph No. +91- 431- 2577283 e-mail: mkayar@bheltry.co.in

TERMS AND CONDITIONS

I Registration

a) The nomination will be registered on first-come-first-served basis.

b) The course enrolment form, completed in all respects must be accompanied with course fee in the form of Demand Draft drawn in favour of "BHEL, Tiruchirappalli - 620014".

c) Nominations received without course fee will not be entertained.

d) Last date for registration is one week prior to start of each course and subject to availability.

e) However to avoid disappointment, your nomination should reach WRI well in advance.

f) 2 Nos of Passport size color photos of the nominees should accompany the nomination letters / forms for arranging security pass.

II Cancellation / Postponement

a) If the nomination is cancelled before the last date of registration (One week prior to the commencement of the course) the course-fee will be refunded in full.

b) If the nomination is cancelled after the last date of registration, but before the start of the course, 90% of the course fee will be refunded.

c) No refund will be made for cancellation beyond the start of the course.

d) Request for adjustment of the fee paid to a future course will be considered subject to availability of seat in the said programme.

General

WRI reserves the right to cancel / postpone any of the declared programmes, due to unforeseen circumstances. All communications regarding the nominations shall be addressed to:

THE PROGRAMME OFFICER
WELDING RESEARCH INSTITUTE
BHEL, TIRUCHIRAPPALLI - 620 014

Telephone : +91-431- 2577283
E-mail : mkayar@bheltry.co.in / gbs@bheltry.co.in
Fax : +91-431-2520770
Website : www.wriindia.com

SUBSCRIBE NOW FOR WRI JOURNAL

Welding Research Institute is publishing WRI journal for the past thirty years cater to the needs of Indian industries and the academic institutions. The journal is being subscribed by the industries in India and abroad. The journal contains:

- Results of the Latest research projects carried out at WRI
- Fourth coming events related to fabrication industries around the world
- New products in welding and testing field.
- Brief on customer services by the Institute

You are welcome to join our welding family and be immensely benefited by subscribing to our journal in the following format. The annual subscription for the journal is 400/- (Rupees four hundred only) in India and US $40 for overseas by Airmail. The DD may be drawn in favour of **"Bharat Heavy Electricals Ltd., Tiruchirappalli - 620014"** and payable at **SBI - HEK, Kailasapuram, Code No. : 1363**

PROFORMA APPLICATION

To
The Editor
WRI Journal
Welding Research Institute
Bharat Heavy Electricals Limited
Tiruchirappalli - 620 014.

Name of the person / Organisation:
Despatch address:

We are subscribing for WRI Journal for the year 2011 and sending you the Demand draft no. ..... Dated ..... for Rs. 400/- (Rupees four only) which is enclosed herewith.

WELDING & INSPECTION

STC - 387 :23 05 2011 - 28 05 2011
STC - 388 :27 06 2011 - 02 07 2011
STC - 389 :01 08 2011 - 06 08 2011
STC - 390 - 05 09 2011 - 10 09 2011
STC - 391 - 10 10 2011 - 15 10 2011
STC - 392 - 31 10 2011 - 05 11 2011
STC - 393 - 02 01 2012 - 07 01 2012

Course Fee Rs. 18,000/-*

Last date for Registration: one week prior to start of the course subject to availability.

About the course: This course aims at providing basic information about various welding processes, welding metallurgy and inspection techniques. The theoretical lecture covered will be supplemented with adequate practical demonstration at WRI. This course will be useful for the personnel from fabrication industries, automobile, power plant, ship building and a host of other fabrication sectors.

Eligibility: Candidates should possess a degree in any branch of engineering or equivalent (or) diploma in engineering with minimum 2 years of industrial experience related to fabrication / quality control.

Course Contents

- Power sources and safety in welding
- SMAW process - equipment, techniques & electrodes classification
- SAW process - principle, equipment, techniques, consumable and applications
- GMAW and FCAW processes - principle, equipment, techniques, consumables and applications
- GTAW process - principle, equipment, techniques, consumables and applications
- Welding metallurgy - weldability of steels
- Heat treatment of weldments
- Welding symbols & Distortion and residual stresses in weldments
- Welding procedure specification
- Welder qualification as per ASME & IBR requirements
- Mechanical testing of welds
- Weld discontinuities, types, causes and remedies
- Visual inspection
- Penetrant test & magnetic particle test
- Radiographic testing principles & techniques
- Ultrasonic testing principles & techniques
- Demonstration of welding Processes and Destructive & Non Destructive Testing methods.

* Service tax is to be paid extra as applicable as per GOI rule.

CERTIFIED WELDING INSPECTORS

CWI - 71 : 07 06 2011 - 18 06 2011
CWI - 72 : 12 07 2011 - 23 07 2011
CWI - 73 : 19 09 2011 - 30 09 2011
CWI - 74 : 15 11 2011 - 26 11 2011
CWI - 75 : 20 12 2011 - 31 12 2011
CWI - 76 : 07 02 2012 - 18 02 2012

Course Fee Rs. 34,000/-*

Last date for Registration: one week prior to start of the course subject to availablity

About the course: This course is intended for those welding personnel who are seeking a career as welding inspectors and those involved in quality control and quality assurance functions. The course covers nearly all aspects in welding and inspection with specific focus on International codes of construction. The course will enable the participants to carry out inspection of weld in the fabrication of pressure vessels, structural and piping. This course is well recognised by the Industries all over the world. More than 4000 inspectors have already benefited by this course and are occupying key positions all over the world.

Eligibility: Candidates should possess a degree in any branch of engineering or equivalent (or) a diploma in engineering. Candidates should possess a minimum two years industrial experience related to fabrication / construction / quality control.

Note: Candidate not sponsored but appearing private shall produce the copy of certificate in proof of work experience.

Course Contents

- Introduction to Welding
- Welding power sources and Arc Physics
- Basic metallurgy
- Welding metallurgy Weldability of steels (C.S, L.A.S & S.S)
- Shielded metal arc welding process and electrodes classification

- Submerged arc welding process principles, techniques and applications
- GTAW process principles, Techniques and applications
- GMAW and FCAW processes principles, techniques and applications
- Weld joint design type of joints and welding symbols
- Residual stresses and distortion control
- Heat treatment of weldments
- Visual inspection
- Penetrant testing and magnetic particle testing
- Radiographic testing principles & techniques
- Ultrasonic testing principles & techniques
- Welding procedure specification, procedure qualification record as per ASME.
- Fabrication aspects of structural steels as per AWS D1.1
- Fabrication aspects of pressure vessels as per ASME code
- Line pipe welding and testing as per API 1104
- Welders qualification as per ASME and IBR requirements
- Weld discontinuities types, causes and remedies
- Welding Economy and productivity
- Occupational Health & Safety in welding
- Demonstration of welding Processes and Destructive & Non Destructive Testing metods.

Examination: At the end of the training programme, the participants are required to take up an examination. Candidates should score a minimum of 50% marks for a pass in the examination.

* Service tax is to be paid extra as applicable as per GOI rule.

ULTRASONIC TESTING LEVEL - II

Course Fee Rs. 31,000/-*

NDT - 115 : 17 08 2011 - 27 08 2011

Last Date for Registration: One week prior to start of the course subject to availability.

About the course: The course is designed to provide the participant with an understanding of the fundamental theory and applications of ultrasonic testing and to qualify them to conduct specific ultrasonic test as per procedures. Its contents will meet the requirements for certification as level II as per the practices recommended by SNT-TC-1A of American Society for Non Destructive Testing (ASNT)

Qualification: Degree / Diploma in Engineering OR Degree in Science

Experience: One year in Ultrasonic Testing - to be certified by employer.

Vision Requirement: Corrected or uncorrected Near Vision of Jaeger J2 and no color blindness.

Course Contents

- Properties of sound and wave propagation
- UT - equipments
- UT Calibration and reference blocks
- Familiarisation of ultrasonic testing probes
- DAC and its significance
- Ultrasonic testing techniques
- Testing of raw materials
- Ultrasonic testing of welds
- Ultrasonic testing of castings
- Welding processes and associated defects
- Defects location, sizing, standardisation
- Interpretation of UT signals and variables affecting the test results
- Welding process demonstration, ultrasonic testing practicals, quiz, theory and practical examination

Examination: At the end of training programme, the participants are required to take up an examination in theory and Practical's as recommended by SNT-TC-1A of ASNT. The successful candidates will be awarded a certificate based on which the employer can certify the individual as UT level II.

Note :

1. A letter should be addressed to the programme officer requesting WRI to train the candidate as per ASNT-SNT-TC-1A. A copy of the proof of educational qualification and employer certificate of experience should be provided at the start of the course.
2. Participants are requested to bring with them a Scientific Calculator for the programme.

* Service tax is to be paid extra as applicable as per GOI rule.

RADIOGRAPHIC FILM INTERPRETATION

NDT - 116 : 18 10 2011 - 22 10 2011

Course Fee Rs. 15,000/-*

Last date for Registration: One week prior to start of the course subject to availability

About the course: The course is designed to provide the participant an understanding of the fundamental theory and application of radiographic testing and to undertake radiographic film interpretation as per different codes and standards. The participant will be able to obtain an insight into the important aspects to be considered during interpretation. Personnel involved in the quality functions and manufacturing operations will find the course useful.

Qualification: Degree in Science or Degree / Diploma in engineering.

Vision Requirement: Corrected or uncorrected Near vision of Jaeger J2 required and no color blindness.

Course Contents

- Introduction to NDT
- Radiographic Principles
- Radiographic sources
- Radiographic techniques
- Film processing
- Radiographic image quality
- Interpretation of radiographs
- Standards and codes
- Radiographic film interpretation - practical.

* Service tax is to be paid extra as applicable as per GOI rule.

NDT TECHNIQUES

NDT - 117 : 06 12 2011 - 10 12 2011

Course Fee Rs. 15,000/-*

Last Date for Registration: One week prior to start of the courses subject to availability

About the Course: The course is designed to provide an overall view of NDE and to acquaint the participants of the various aspects and techniques used in commonly applied NDE. The advantages, disadvantages and applications of each technique will be highlighted. It is useful for quality professionals, designers and manufacturing personnel.

Eligibility: Degree in science or engineering or diploma in engineering will be preferable. Fresh graduates also can attend the course to gain knowledge on this important quality tool.

Course Contents

- Basic metallurgy for NDT
- Visual inspection
- Penetrant testing and magnetic particles testing principles, Techniques and applications
- Radiographic testing principles and techniques
- Ultrasonic testing principles and techniques
- Weld defects, causes, remedies and NDT for detection
- Fracture mechanics & NDT
- Proof testing and helium leak testing
- Acoustic emission
- Welding processes demonstration,and Defect Identification Lab
- PT,MT,RT AND UT - Practicals

* Service tax is to be paid extra as applicable as per GOI rule.

ASME
BS
DIN
IBR
EN 287
IS

I. Welder training and qualification

WRI offers practical training to welders for a variety of job requirements. The practical training is tailored to the specific needs of the individual welder under the close supervision of experienced instructors. Besides practical training, necessary theoretical inputs are also given.

The training workshop is equipped with facilities for SMAW, GMAW, GTAW and SAW processes. Welding techniques and skills are taught for plates, pipes and tubes in various positions. Welders are trained in variety of materials like Carbon steels, low alloy steels, stainless steels and non-ferrous materials. Materials and consumables for training in common grades are provided by WRI. More specialised materials have to be provided by the sponsoring company.

The welders training is organized right through the year at WRI. The duration of the training depends on the initial level of the welder, his ability to acquire higher skills, the actual job requirements like material, process, position etc. After the training the welder can be qualified as per the requirements of various codes like ASME, BS, DIN, IBR, EN 287 & IS, etc. Such qualification in the presence of any testing authority specified by the customer is also possible.

To finalise the course content, considerable interaction with customer is necessary on materials, process, code, qualification requirements etc. The duration, course fee and testing charges will vary depending on these factors.

For further information, please contact

Sr. DEPUTY GENERAL MANAGER (TRAINING)
WELDING RESEARCH INSTITUTE
BHEL, TIRUCHIRAPPALLI - 620 014.
Telephone : (0431) 2577266, 2577283, 2577280
e-mai : gbs@bheltry.co.in / mkayar@bheltry.co.in
Fax : +91-431-2520770

II. Standard training and qualification programme

The school of welding offers standard training programmes for welders as indicated in Table - 1.

The welders joining these courses should essentially have an ITI certificate and also should also have an experience of minimum 3 to 5 years. Moreover experienced welders having no specific qualification can also attend the programme given in the Table - 1.

III. Organisation based training programme

Orientation course in particular processes, materials, job and positions are also arranged at the School of Welding for specified durations. These courses are fully tailor - made to the needs of sponsoring organizations or individuals.

IV. Training Charges

The charges are valid till 31.03.2012. Qualification tests to agencies like IBR, LRIS and others will involve additional charges, as applicable

V. Lodging and boarding

Boarding and Lodging arrangements at "WRI HOSTEL" can be provided on request, subject to availability at extra charge.

VI. Transport to WRI

The Welding Research institute is situated in BHEL,Tiruchirappalli complex. Transport will be provide for commuting to WRI for all the participants residing in WRI hostel.

TABLE - 1

Course No.	Job and Material	Process	Code	Positions	Minimum Period	
					Training (in weeks)	Training & Qualification (in weeks)
01.	Carbon, low alloy steel plates	SMAW	IBR ASME	Vertical, Horizontal & Downhand (DH)	04	05
02.	Carbon Steel Pipe & tube	GTAW & SMAW	IBR ASME	All position	06	08
03.	Alloy steel pipe & tube	GTAW & SMAW	IBR	All position	08	10
04.	Stainless steel sheets, pipes & tubes	GTAW & SMAW	-	DH, Horizontal	04	-
05.	Carbon, low alloy steel sheet & plates	GMAW	ASME	DH, Vertical & Horizontal	04	05
06.	Aluminium sheets & plates	GMAW	-	DH, Horizontal & Vertical	04	-
07.	Carbon, low alloy steel sheets & plates	SAW	IBR ASME	DH	04	05

TABLE -2

Training Charges

Process	Material	Charges / Week / Welder Rs.
SMAW	Carbon steel	8850
	Alloy steel	10500
GTAW	Carbon steel	8900
	Alloy steel	10000
	Stainless steel***	***
	Aluminium***	***
Solid wire CO_2 and FCAW	Carbon steel	9950
	Alloy steel	13300
	Aluminium***	***
GMAW	Aluminium & other non-ferrous materials***	***

* Service tax is to be paid extra as per GOI rule..

*** Customer to supply materials & electrodes as free issue

Notes

Notes