**Annexure – II of ITEC**

**INDIVIDUAL COURSE DETAILS**

**Advanced Certificate Course On“Skill Development in Electronics for**

**TVET Trainers and Planners”**

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| A. Name of the Institute | **NATIONAL INSTITUTE OF** **TECHNICAL TEACHERS TRAINING AND RESEARCH****TARAMANI, CHENNAI – 600 113, INDIA****[An Autonomous Institute under Department of Higher Education, Ministry of Education, Government of India]****Taramani, Chennai – 600 113, INDIA.** |
| B. Title of the Course | **Advanced Certificate Course On****“Skill Development in Electronics for** **TVET Trainers and Planners”** |
| C. Proposed Mode of the Course1.Offline (Physical - Regular ITEC)2.Online (e-ITEC)3.Either Offline(Regular ITEC) or  Online (e-ITEC) |  **Offline / Online** |
| D. Proposed Dates and Duration of the **Course** (in weeks / months) | **22.02.2023 To 21.03.2023****(4 weeks)** |
| E. Eligibility Criteria for Participants 1. Educational Qualification 2. Work Experience3. Age Limit 4. Target Group  | Applicants for this course musthave a degree or diploma in engineering / technology or in any vocational field 5 years and above25-45 yearsAdministrators /Trainers/ Planners/ Engineers / Polytechnic and Engineering College Teachers and with relevant discipline  |
| F. Aims & Objectives of the Course | * Develop industry inclined TVET Curriculum for Technical Education (Electronics)
* Setup Automation lab using PLC and SCADA
* Develop graphical environment and Virtual Instruments for industries using LabVIEW
* Plan for solar and wind energy to develop green environment
* Understand Industry 4.0 and Cyber Physical systems
* Design Economically home automation using Arduino and Raspberry pi with sensors
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| G. Details of Content of the Program *(please attach detailed course profile)* | **I Scope of the Programme:**Electronic Circuits and Systems have applications in a wide range of products including audio and video entertainment, home appliances, medical instruments, automobile and Industrial applications. The human resource requirements include installation, servicing and maintenance personnel. TVET has an important role to play in technology diffusion through transfer of knowledge and skills. Rapid technological progress has had and continues to have significant implications for TVET. Understanding and anticipating changes has become crucial for designing responsive TVET systems and, more broadly, effective skills policies. The TVET institutions provide the needed human resource to meet these requirements. The trainers and planners of TVET progammes in electronics need practical skills and theoretical knowledge in modern electronic system. This program aims at providing these skills for TVET personnel. The Industrial Automation like PLC and SCADA, Sensors, LabVIEW Programming, different boards like Arduino and Raspberry pi form the basis of today’s electronic system. With this background, this programme is designed with the following objectives. **II Objectives of the Programme:*** Develop industry inclined TVET Curriculum for Technical Education(Electronics)
* Setup Automation lab using PLC and SCADA
* Develop graphical environment and Virtual Instruments for industries using LabVIEW
* Plan for solar and wind energy to develop green Building Concept
* Design Economically home automation using Arduino and Raspberry pi with Sensors

**III Eligibility Criteria /Participants:**Educational Qualifications:Applicants for this course musthave a degree or diploma in engineering / technology or in any vocational field Age Limit: 25-45 yearsTarget Group: Administrators /Trainers/ Planners/ Engineers / Polytechnic and Engineering College Teachers and in relevant discipline The participants should have good knowledge in reading, writing and spoken English. The instructions will be in English.**IV Curriculum of the Programme:*** Industry inclined TVET Curriculum for Technical Education(Electronics)
* Automation using PLC and SCADA
* Graphical environment and Virtual Instruments for industries using LabVIEW
* Solar and wind energy systems
* Arduino and Raspberry pi with MEMS
* Concepts of home automation
* Principles of remote monitoring system for Industries
* Strategy for health monitoring system in agricultural sector

**V INSTRUCTIONAL STRATEGIES:**Lecture – Practical hands on sessions- Discussions - Demonstrations - Assignments - Seminar - Video lessons - Field visits.**VI INDUSTRIAL VISITS PLANNED*** Orchid Chemicals & Pharmaceuticals Ltd Chennai
* Fortran Cirkits,Chennai
* Vi Microsystems Pvt Ltd Chennai
* National Institute of Wind Energy, Chennai

**CERTIFICATE**At the end of the programme, candidates will be awarded Certificate on “Skill Development in Electronics for TVET Trainers and Planners”. |
| H. Expected Outcomes | **OUTCOME:**The participants will gain the knowledge and skills in latest technologies to meet the challenges of TVET. |
| I. Evaluation of Performance of the  ITEC Participant | The performance of the participants will be regularly assessed through Assignments, Practical sessions, group activities and project work |
| J. Name of the Department | Electrical Electronics and Communication Engineering, NITTTR, Chennai |
| K. Name of Coordinators | Dr.G.A.Rathy, Associate Professor and Head i/c, EECE DepartmentDr.P.Sivasankar, Associate Professor,EECE Department |
| L. Brief Profile / CV of Coordinator | Dr G. A. Rathy, is working as Associate Professor in the department of Electrical and Electronics Engineering, NITTTR, Chennai since 1998. Her area of Specialization is Power Electronics and Drives and she has organized more than 200 Faculty Development Programmes for Technical Teachers of the southern region of India. She specially designed skill oriented programmes for Electrical Engineering discipline such as PLC and SCADA, Power Electronics, PCB design, Industrial Automation and Electrical CAD. She developed Power Electronics and Special Machines Lab, Industrial Automation Lab and Electrical Simulation lab. She has published more than 25 articles in National/International journals/conferences. She has published a book on LabVIEW Programming Concepts with Examples, in Sci-Tech publications in 2015Dr.P.Sivasankar is working as Associate Professor in the department of Electrical and Electronics Engineering, NITTTR, Chennai since 2006. His areas of Interest include:* Sensor Applications using Raspberry Pi Arduino and myRIO
* Wireless and Mobile Communications
* Advanced Digital System Design
* Embedded systems

He has published more than 30 articles in National/International journals/conferences |
| M. Resource persons | 1.Mr.B. Saravanan Founder,BrixEn Hi Tech Pvt Ltd ChennaiChennai 9840898380 bsaravanan@regimen.in2.Mr. Domini JohnBentech Training Pvt TtdChennai 8015066225 bentechtraining@gmail.com3.Mr Rajesh RamanProgyaan, ChennaiMobile No:9791800866Mr.A.VijayabalanManaging Director, Transun Energy systems,ChennaiMr. Aravind Balaji, Application Engineer, Vasee Electronics, ChennaiMobile No.: 8056290929; balajiaravi@gmail.comMs SherinJoint Director –CDAC, Chennai Dr. P. Kanagavel, Director, Training Division, NIWE, Chennai. Mobile No.: 9445798007; pkanagavel.niwe@nic.in Dr G.KulanthaivelProfessor, EECE Head CIA,NITTTR,Chennai |

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