



# NATIONAL INSTITUTE OF OPEN SCHOOLING

An Autonomous Institution under Ministry of HRD , Govt of India  
(ISO 9001:2008 Certified)

**NSQF compliant course developed in  
collaboration with**

**COMMONWEALTH EDUCATIONAL MEDIA CENTRE FOR ASIA**

**Announces admission to new course on  
Sound Technician (Level 3) Course code: 630  
(English Medium)**

**Duration : Six months**

**Number of Seats per batch : 20**

**Eligibility : 10th Pass with Maths and Science**

**Extended Last Date : 15.04.2016**

**Fee : Rs. 25,000/-**

Training will be conducted at NIOS , HQ NOIDA

For admission form visit [www.nios.ac.in](http://www.nios.ac.in) or contact

Regional Centre, Delhi

National Institute of Open Schooling,

A- 31, Sector 62 Noida Toll free No. 1800 180 9393

# **Programme Guide**

**for**

**Certificate in Sound Technician/Assistant**

**Course code: 630**

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## **1. Introduction**

In the present employment scenario, an individual not only needs skill to perform a particular type of work but also generic skills so as to become employable. Various courses are offered at National Institute of Open Schooling (NIOS) for secondary, senior secondary and upto pre degree levels. The aim of Vocational Education at NIOS is primarily directed towards arming the learners with the right knowledge & practical skills to prepare students for gainful self/wage employment. The course on Sound Technician is designed to enable the NIOS learner understand the basic concepts of Sound, its Principles and Acoustics. This program has been designed keeping in view the report of the Media and Entertainment Sector Skill Council which suggests that most of the jobs in this industry are for technical assistants in India. Sound Assistant in the Media & Entertainment Industry is also known as a Sound Technician or Boom operator. The programme guide includes the objectives of the program along with transactional and assessment strategies . It also enlists the scope and various job opportunities available to learners after passing this course.

## **2. Objective of the programme :**

After completion of the programme, the learners are expected to :

- know the principles of sound and acoustics;
- get acquainted with the features and handling specifications of sound equipment and to be able to operate them effectively during shoots/audio programmes;
- place/move equipment appropriately to ensure that the sound captured meets expected quality/standards;
- operate the boom mic to capture sound/dialogue unobtrusively with regard to the positioning of the camera/lighting;

Detailed syllabus of the program is annexed at Appendix A

## **3. Admission**

### **3.1 Admission Procedure**

Application for admission must be made in the prescribed form in duplicate given in Appendix 'B'. The application form may also be downloaded from NIOS website at [www.nios.ac.in](http://www.nios.ac.in) . Please read carefully the instructions given in Appendix 'B' before filling in the Application Form. The filled in Application Form along with relevant documents and the requisite fee should be submitted to the Regional Centre Delhi . Application Form will not be accepted by NIOS directly either at its counter or by post.

### 3.2 Documents Required for Admission

<i>Items</i>	<i>Documents required</i>
<b>Educational Qualifications</b>	A certificate issued by a recognized Board of Education.
<b>Age Proof.</b>	Attested copy of Birth Certificate from the admission register of the school last attended (school leaving certificate/transfer certificate) or from Registrar of Births and Deaths or from a recognized hospital
<b>Proof of Permanent Address</b>	(Ration Card/Election I-Card/ Certificate from Gram Panchayat Officer/ Zilla Parishad/Block Development Officer/SDM/Gazetted Officer or Competent Government Functionary)/Aadhar card
<p>*A student who possesses a High School/Secondary Certificate from a Foreign Board/University, seeking admission to NIOS Vocational Education course will be required to produce a certificate to the office that the examination passed by him/her is equivalent to the Indian High School/Secondary School Examination. Equivalency certificate may be obtained from the Association of Indian Universities, Kotla Road, New Delhi 110002.</p> <p>Note:</p> <ul style="list-style-type: none"><li>(i) In case of Orphan/Juvenile/Street Children, the Medical Legal Certificate may be provided as proof of Date of Birth.</li><li>(ii) Please state the correct date of birth. Date of birth once given in the Admission Form will not be changed.</li></ul>	

### 3.3 Cut off dates

To regulate the eligibility for the purpose of examination the cut off date will be 15th March 2016 for this programe in this year .

### 3.4 Minimum Age

The cut off date are also applicable for age criteria. This means that the minimum age of candidate should be 15 years.

### **3.5 Confirmation of Admission**

Please check your admission particulars carefully. Mistakes, if any, may be brought to the notice of Regional Centre, Delhi immediately. You should keep your Identity Card under safe custody as it also serves as “Hall Ticket” during Examinations.

You may get a duplicate identity card if the original card is lost. Lodge an FIR in this regard with the concerned Police Station. Apply to the concerned Head of the Regional Centre on a plain paper through regional centre and attach: 1. Copy of FIR , 2. A Bank Draft of Rs.100/- (Rs. One hundred only) drawn in favour of Secretary, NIOS payable at Noida 3. A photograph, and 4. Your specimen signatures on the Application Form which have to be attested by the Coordinator of your AVI/SAIED/Regional centre.

### **3.6 Fee**

The amount of admission fee payable for the course is Rs. 25000/-. Admission fee payable includes charges for registration, Identity Card, cost of study material, contact classes, practical training etc. The Admission fee should be paid to the Regional centre, Delhi either in cash or through a Bank Draft drawn in favour of Secretary , NIOS payable at Noida.

### **3.7 Cancellation of Admission**

Your admission may be cancelled and fee will be forfeited on the following grounds:

- ➔ Incomplete application form
- ➔ Shortage of fee
- ➔ Age below the prescribed limit
- ➔ Lack of required educational qualification
- ➔ Required document of age, qualification and experience are not attached
- ➔ Any other discrepancy

Note : Admission once cancelled will not be reconsidered.

## **4. Transactional strategies:**

NIOS will provide the Self Instructional Study Material specially designed by experts in the field to the enrolled learners . It will help the candidates to learn on their own. This programme is being offered in English medium only .

Transactional mechanism essentially involve both theory and practical component. In theory learners will be taught about the basics concepts of Sound , tools and equipments with their maintenance. Practical component will involve recording of Sound, editing , mixing etc. It will deal with projects, lab work, practical use and handling of various equipments and

devices. Hands on training for practicals will be taught via well furnished media labs. Detailed infrastructure norms are annexed at Appendix B.

Video programmes of Sound Technician Programme have been developed by the technical team of Media unit of NIOS . Details of Video Programmes are given herewith:

**Video 1** introduces the programme, roles of sound assistant/technician, job profile includes a production mixer and audio recordist. The required skills, interests and qualities for a Sound Assistant/Technician have also been discussed.

**Video 2** talks about Sound measurement units , sound technology , advantages of digital technology over analog technology.

**Video 3** gives details of Sound Measurement and Technology. The basic laws of propagation of sound waves have been explained there .:

1. Law of Reflection
2. Law of Refraction These are
3. Law of Diffraction



**Video 4** : discusses in detail about Studio Acoustics including various factors to be considered in acoustic design. Studio and control room acoustics play a very important role while recording any talk/musical program. Irrespective of which type of studio facility is being designed, built and used, there are various factors, which should be addressed, in order to achieve the best possible acoustic results.

Topics covered are Acoustic isolation , Symmetry in control room and monitoring design Frequency balance, Reflection, Absorption and Reverberation.

Acoustic treatments of studios are of prime importance to have the sound propagated perfectly.

For achieving optimum R/T characteristics combination of acoustic absorbers is used in the studio. Every material has some absorptive qualities. Porous Materials, Fibrous Materials, Panel/ Resonant Absorbers have been explained

**Video 5** describes Health and Safety with regard to this job role . Safety considerations are an integral part of any technical working area/ setup. In this video it is explained what precautions need to be taken at the studio level for various types of health and safety considerations.



Following studio equipments have been described:

- Microphones
- Recorders
- Amplifiers
- Sound Mixers
- Speakers
- Routers
- Wireless Communication Devices
- Cables and batteries etc.

All these material are packed with safety instruction and these instructions are available on the users' manual.



A Sound Assistant is required to be alert at all times during recording hour and also after the recording hour and see that no lapses occur in the safety at the recording area. It is the responsibility of the sound assistant to instruct and make aware the crew about safety directives.

It also covers protecting studio software, Reading Manuals while installing and disassembling sound equipments , Protecting recorded data etc.



**Video 6** details the various Sound Equipments. Microphones and their various types such as Condenser Microphone, Dynamic Microphone, Ribbon Microphone, Carbon microphone, Piezoelectric microphone, Fiber optic microphone have been discussed.

Various Polar pattern such as Omni-directional , Uni-directional , Bi-directional are included using diagrams.

Components of Loudspeaker, its different types, how a Loudspeaker works, Headphones/earphones and their types have also been explained . Apart from these other equipments such as Amplifier , Turn table , Audio Tape Recorder/ Player , Compact Disc , Portable 2-track Digital Recorder have also been explained .

Amongst the vital aspects in the field of sound are Audio recording, Playback Softwares which is also addressed here.

**Video 7** explains the electronics related to sound technology . Voltage, current, Interference, earthing connection and problems, carry out adjustments etc have been explained.

**Video 8** is on Audio consoles . It includes various types of signal - Analog- Digital- their Purpose, Block diagram (I/O signal path), features, facilities, Visual and Aural metering etc.

**Video 9** details about Installing and Disassembling Sound Equipments: Audio chain: Operating and Managing Sound equipments, requirement of power for sound, placements of power fitting and techniques of safe testing of sound equipments - sound checks etc

**Video 10** is on Recording & Capturing Sound : Production Types- Indoor, Outdoor, Speech, Music, Live Music ; Qualities of professional sound recording - Concept of frequency response distortion, noise, signal to noise ratio (SNR), dynamic range etc.

## **5. Evaluation :**

Programme of study involves both theory & practical. Practical work will be assessed in the form of a project developed during the course duration and it should contain practical study work conducted. Project/Portfolio will be judged at the end of the session on the basis of accuracy, creativity, content and presentation.

You will have the opportunity to avail a maximum of 9 chances in 5 years time period to complete your course. Eligibility to appear for the first time in external/public examination is Oct-Nov 2016 for the candidates admitted in March 2016.

Candidate may write examination in Hindi, English or any regional language . Results are declared approximately eight weeks after the last paper of public examination . Candidates will have to register for the examination upto 15th July 2016 with the prescribed fee of Rs. 300/- (together for theory, practical, internal assessment). All candidates have to pay examination fee

Please note that fees paid for examination cannot be refunded or adjusted under any circumstances.

**Other Miscellaneous Fees:**

- Duplicate copy of the Certificate Rs. 200/-
- Duplicate Marks Statement Rs. 200/-
- Revised Marks Statement, provisional , migration and pass certificate after correction Rs 200/- per document
- Rechecking of Marks Rs. 300/- (per subject)
- Verification of NIOS document Rs. 500/-
- Issue of urgent duplicate Statement of Marks/Migration certificate/Provisional certificate Rs. 400/- per document

**5.1 Scrutiny of Marks (Theory)**

If you are not satisfied with your result of a public examination, you may apply for Scrutiny of marks within 30 days from the date of declaration of result. You may apply in the prescribed Proforma or on a plain paper with prescribed fees (through a bank draft) to the concerned Regional Centre of NIOS.

**5.2 Issue of Certificates**

You may receive your marksheet from your regional centre after declaration of the result. Please note that NIOS does not issue any migration certificate to its students of Vocational Education Courses.

**6. Job opportunities :**

Having a certificate in sound technician will enable the learner in making their careers in various subsectors such as film, television , advertising etc. In addition to this ;

- Assistants to Sound Designer, Editor , Mixer etc.
- Working with AIR, Community Radio Stations, web radio stations spread out nation wide
- Vertical mobility also in terms of getting higher education in the field such as sound engineer , sound designer etc.

**6.1 Job Description:**

Individuals at this job are responsible to set-up/disassemble sound equipment and capture sound. He/she must be well-versed with the features and handling specifications of sound equipment to be able to operate them effectively during shoots/audio programmes. The individual must be able to place/move equipment appropriately to ensure that the sound captured meets expected quality standards. In case of live shoots, the individual must know how to operate the boom mic to capture sound/dialogue unobtrusively with regard to the positioning of the camera/lighting.

**Syllabus**

**L-1 Introduction:** Introduction to sound, Nature of sound, Characteristics of Sound: Amplitude, wavelength, time period frequency, speed or velocity ; Principles of sound Propagation, Refraction, reflection, transmission, absorption of sound.

**L-2 Measurement of Sound:** Units of sound i.e. decibels and their usage, dynamic range, sound pressure level (SPL)

**L-3 Fundamentals of Sound technology:** Analog & digital signals, Converters- converting analog to digital, vice versa

**L-4 Studio Acoustics:** Meaning of acoustics, need of acoustics, factors governing studio and control room acoustics - acoustics isolation, symmetry in design, reflection, absorption, reverberation Cost factors; Phenomenon of Sound propagation: refraction noise level basics of psychoacoustics - sound transmission, threshold of hearing and pain

**L-5 Audio Electronics:** Voltage, current, Interference, earthing connection and problems, carry out adjustments.

***National Occupational Standard : Setting up, Maintaining & Disassembling Sound Equipments***

**L-6 Microphones** - Definition of microphones, Classification of microphones based on transducer types and polar pattern, use of microphones, Key considerations while selecting microphones.

**L-7 Loudspeakers** - Types of loudspeakers - Active & Passive, Classification and classification of headphones such as ear bud head phones, on ear headphones, over the ear headphones

**L-8 Other Sound Equipments:** Amplifiers & their types ; recording and playback equipment-Audio recorders: DAT, Tape recorder, Hard Disk Recorder, Sound Cards, Digital Audio Workstation and related software

**L-9 Audio Consoles :** Types - Analog, Digital, Purpose, Block diagram (I/O signal path), features, facilities, Visual and Aural metering

**L-10 Installing & Disassembling Sound Equipments:** Audio Chain: Operating and Managing Sound equipments, requirement of power for sound, placements of power fitting and techniques of safe testing of sound equipments - sound checks

***National Occupational Standard : Maintenance of Workplace Health & Safety***

**L-11 Health & Safety :** General safety provisions, sound studio safety, studio hardware and software protection; Safety Measures while working with electronics mains equipment, - do's and don't's.

***National Occupational Standard : Recording and Capturing Sound***

**L-12 Recording & Capturing Sound :** Production Types- Indoor, Outdoor, Speech, Music, Live Music ; Qualities of professional sound recording - Concept of frequency response distortion, noise, signal to noise ratio (SNR), dynamic range etc.

## Appendix B