



**Technical Examination Board, Gujarat State,  
Gandhinagar**

**HOSPITAL ASSISTANT AND TECHNICIAN**

|                     |                                       |
|---------------------|---------------------------------------|
| Title               | 86: Hospital Assistant and Technician |
| Level               | Trade Certificate Course              |
| Course Duration     | One Year (full time)                  |
| Entry Qualification | S. S. C. Pass                         |
| With Effect from    | June 2023                             |

## Certificate Course in Hospital Assistant and Technician

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### Teaching Scheme:

| Sub Code     | Subject Name   | Teaching Scheme |           | Examination Scheme |      |                 |      | Term Work Marks | Total Marks |
|--------------|--|-----------------|-----------|--------------------|------|-----------------|------|-----------------|-------------|
|              |  | Theory          | Practical | Theory Marks       | Hrs. | Practical Marks | Hrs. |                 |             |
| 861          | Primary Patient Care and Preventive Medicine                       | 02              | 04        | 100                | 03   | 25              | oral | 50              | 175         |
| 862          | Physiology Anatomy Hygiene Nutrition and Biomedical Waste Disposal | 03              | 02        | 100                | 03   | 100             | 03   | 50              | 250         |
| 863          | Clinical field Techniques and Procedures                           | 03              | 08        | 100                | 03   | 100             | 03   | 50              | 250         |
| 864          | Technical field Techniques and Procedures                          | 03              | 08        | 100                | 03   | 100             | 03   | 50              | 250         |
| 865          | On field Training Hospital Assistant and Technician                | -               | One Month | -                  | -    | 100             | 03   | 50              | 150         |
| 866          | Yoga, Spiritual Studies and Managerial Studies                     | 02              | -         | -                  | -    | -               | -    | 25              | 25          |
| <b>Total</b> |  | 13              | 22        | 400                |      | 425             |      | 275             | 1100        |

|                          |      |                |               |
|--------------------------|------|----------------|---------------|
| Total Week               | = 32 | Theory         | = 1 Hour      |
| Total Teaching slot/Week | = 35 | Practical      | = 1 Hour      |
| Theory Periods           | = 13 | Total teaching | = 35 hrs/week |
| Practical Periods        | = 22 |                |               |

**Note:**

Candidate may appear the Technical Examination Board's exam either in English or Gujarati.

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### **86: HEALTH WORKER (NURSING)**

#### **Course objectives:**

- Prepare bottom level cadre workers who can assist doctors, nurses, technicians & paramedical staff in carrying out their duties.
- Impart practical & theoretical knowledge and firsthand experience in selected subjects.
- Prepare candidates who can assist in administrative and managerial activities.
- Impart necessary knowledge of computer literacy.
- Inculcate missionary spirit and humanitarian approach befitting the noble profession.
- Develop ability to work at Hospitals and nursing homes, Hotels and Health Resorts.
- impart knowledge in the area of Communicable disease and immunization procedures, Preventive Medicine, Community health serious & first aid.

#### **Course Subjects:**

| Sr. No | Sub Code | Subject Name   | Theory in Hrs | Practical in Hrs |
|--------|----------|--|---------------|------------------|
| 1      | 861      | Primary Patient Care and Preventive Medicine                       | 64            | 128              |
| 2      | 862      | Physiology Anatomy Hygiene Nutrition and Biomedical Waste Disposal | 96            | 64               |
| 3      | 863      | Clinical field Techniques and Procedures                           | 96            | 256              |
| 4      | 864      | Technical field Techniques and Procedures                          | 96            | 256              |
| 5      | 865      | On field Training Hospital Assistant and Technician                | -             | 01 Month         |
| 6      | 866      | Yoga, Spiritual Studies and Managerial Studies                     | 64            | -                |
|        |          | Total  | 416           | 704              |

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| <b>861: Primary Patient Care and Preventive Medicine</b> |  |
|--|--|
| <b>Unit-1</b>  | <b>Communicable disease immunization and preventive medicine</b>   |
| 1.1  | Know common communicable diseases, their mode of spread, preventive measures (isolations, quarantine etc) and prophylactic measures.   |
| 1.2  | Understand general Idea of body immunity and drug relation, adverse effects and their management.  |
| 1.3  | Understand Antigen - antibody reactions.   |
| 1.4  | Understand Development of Immunity   |
| 1.5  | Study Immunization vaccines & sera. <ul style="list-style-type: none"><li>• Understand difference between vaccine and sera.</li><li>• Understand importance of preservation of cold chain</li><li>• Know Immunizing techniques<ul style="list-style-type: none"><li>○ Oral doses</li><li>○ Injection</li></ul></li></ul> |
| 1.6  | Know Immunization dosage, schedules and booster doses.   |
| 1.7  | Prophylactic measure for prevention.   |
| <b>Unit-2</b>  | <b>Community Health Services</b>   |
| 2.1  | Study organization of Mobile health services and home visits.  |
| 2.2  | Understand the setup of Hospital urban Health center and it's services.  |
| 2.3  | Know the organization of Hospital OPD services, indoor services clinics and Departments / wards.   |
| 2.4  | Study organization of Maternal and child health care services and family planning  |
| 2.5  | Communicable disease.  |
| 2.6  | Study various hospital organized – diagnostic and immunization camps.  |
| <b>Unit-3</b>  | <b>First aid measures and Primary Patient Care</b>   |
| 3.1  | Know Resuscitation. <ul style="list-style-type: none"><li>• Maintenance and Repairs of common instruments and gadgets used in health care delivery. Resuscitations. CPR.</li></ul>   |
| 3.2  | Know Emergency first Aid & basics of first aids.   |
| 3.3  | Know the importance of Patient Postures.   |
| 3.4  | Know careful and safe transportation of patient  |

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| 3.5           | Know dressing, different types bandaging and splinting   |
| 3.6           | Know the methods of Care of immobilized limbs (fractured) dislocated limbs   |
| 3.7           | Study the use of Common drugs used in life support, side effect & anti dots incase of adverse reactions.   |
| 3.8           | Understand to judge the gravity of Emergency situations & organize thevarious Measures to cope with them.  |
| <b>Unit-4</b> | <b>Understand midwifery procedure and management</b>   |
| 4.1           | <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Normal pregnancy and its management</li> <li>• Normal labour and its management</li> <li>• Management of newborn</li> <li>• Management of complication during pregnancy</li> <li>• Know drug used in obstetrics</li> <li>• Ethical and legal aspect related of midwifery</li> </ul> |
| <b>Unit-5</b> | <b>Measurement of vital parameter of patient</b>   |
| 5.1           | Know and measure Blood Pressure, Pulse, Respiration, rate, Temperature. Methods of taking temperature various Blood Pressure measuring devices.  |

### **862: Physiology, Anatomy, Hygiene, Nutrition and Biomedical Waste Disposal**

|               |   |
|---------------|---|
| <b>Unit-1</b> | <b>Elementary are Anatomy of the body &amp; Biomedical waste</b>  |
| 1.1           | Learn General Anatomical terms and gross anatomy of organs in different regions of the body.  |
| <b>Unit-2</b> | <b>Elementary Physiology of the body</b>  |
| 2.1           | Study Physiological functions of different organ of the body.   |
| <b>Unit-3</b> | <b>Cardio vascular &amp; Respiratory systems</b>  |
| 3.1           | Understand cardiac cycle  |
| 3.2           | List and identify major arteries and veins  |
| 3.3           | Study coronary circulation.   |
| 3.4           | <p>Understand structure &amp; functions of Respiratory organs from nose to lungs.</p> <ul style="list-style-type: none"> <li>• Study mechanism of breathing and study physiology of respiration.</li> <li>• Understand basic concepts of gas exchange and study pulmonary circulation.</li> </ul> |

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| <b>Unit-4</b> | <b>Digestive System &amp; Excretory System Including Kidney, Skin, &amp; Reproductive System</b>   |
| 4.1           | <p>Study Anatomy &amp; physiology of following organs.</p> <ul style="list-style-type: none"> <li>• Stomach</li> <li>• Duodenum</li> <li>• Small intestine</li> <li>• Large intestine</li> <li>• Liver</li> <li>• Gall bladder</li> <li>• Pancreas</li> <li>• Spleen,</li> <li>• Kidneys</li> <li>• Ureters, bladder, Urethra</li> <li>• Prostate, Testis, vas-deference , seminal</li> <li>• Vesicles, ovaries, Uterus and its functions</li> </ul>                               |
| <b>Unit-5</b> | <b>Study Nervous systems and sense organs</b>  |
| 5.1           | Study Gross anatomy of brain, spinal cord, sensory nerves, reflexes.   |
| 5.2           | Study Gross anatomy & function of eye, ear, nose, tongue, skin.  |
| <b>Unit-6</b> | <b>Muscular skeletal system</b>  |
| 6.1           | Study the entire whole skeletal and study the structure of typical bone Function of the Selection joints No. of Bones, Type of Bones, (long flat etc.) and list of major bones in the skeleton, upper & lower limbs pelvis, the spine.   |
|               | <p>The muscular system.</p> <ul style="list-style-type: none"> <li>• Study Structure &amp; functions of typical muscles &amp; tendons, Types of muscles: voluntary, Involuntary, Cardiac muscle. Muscle origin &amp; attachment and learn names of major groups of muscles (flexors, extensors) of various joints, and other muscles associated with joint movements &amp; body postures.</li> <li>• Study types of joints (ball, hinge etc) ligaments, Cartilages etc.</li> </ul> |
| <b>Unit-7</b> | <b>Endocrine system.</b>   |
| 7.1           | List the names of Various endocrine glands & organs.   |
| 7.2           | List the names of various hormones and their effect on physiology.   |
| <b>Unit-8</b> | <b>Hygiene and Nutrition</b>   |

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| 8.1 | Know the methods of body hygiene inculcation of social manners avoidance of Bad Habits.  |
| 8.2 | Eating Habits, Choice and Selection of food, criteria of Well-cooked well preserved food , safe food, calorie requirement according to age and activities. |

### 863: Clinical Field Techniques and Procedures

| Unit-1 | Operation Theatre Techniques  |
|--------|---|
| 1.1    | Know Pre and Post-operative care.<br>- Suture material<br>- Scrubbing , Gloves, Gown<br>- Suction, Cautery  |
| 1.2    | Prepare Check list of all equipment consumables and disposables.  |
| 1.3    | Identify, list and understand uses of O.T. surgical instruments.  |
| 1.4    | Practice counting of swabs & instruments pre and post operatively.  |
| 1.5    | Study Estimation of Blood loss.   |
| 1.6    | Checks, working condition of O.T. instruments & carry out their preventive maintenance.   |
| Unit-2 | Asepsis and Sterilization   |
| 2.1    | Definition of asepsis and sterilization.  |
| 2.2    | Study different techniques of asepsis.  |
| 2.3    | Study different techniques of sterilization.<br><ul style="list-style-type: none"> <li>• (Moist Heat) Steam</li> <li>• Dry heat / Flame</li> <li>• Boiling.</li> <li>• UV. (Ultra Violet)</li> <li>• Radiation ( <math>\gamma</math> gamma)</li> <li>• E.T.O. (Ethylene Trioxide), <math>Cl_2</math> etc.</li> <li>• Plasma.</li> </ul> |
| 2.4    | Know the methods of handling of sterile material.   |
| Unit-3 | Familiarly with ICCU setup  |
| 3.1    | Plot an ideal lay out of ICCU set up.   |
| 3.2    | Plan Proper ventilation & lighting.   |
| 3.3    | Identify, list and carry out preventive Maintenance of ICCU requirements in including Monitors Alarms and test them.  |

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| 3.4           | Operate the instruments & monitors, alarms after establishing patient connection.                                     |
| 3.5           | Study ICCU discipline & protocol.   |
| <b>Unit-4</b> | <b>Dental Techniques &amp; procedures</b>   |
| 4.1           | Study principles of oral Hygiene.   |
| 4.2           | Care of Denture or artificial teeth.  |
| 4.3           | Operate Dental X-Rays machines.   |
| 4.4           | Understand Principles of orthodontia.   |
| 4.5           | List various gargling agents and study the mode of action.  |
| 4.6           | Know commonly used dental terms.  |
| <b>Unit-5</b> | <b>Ophthalmic Techniques and procedures</b>   |
| 5.1           | Prepare patients for refraction checkup.  |
| 5.2           | Use manual refract meter.   |
| 5.3           | Use computerizes refract meter.   |
| 5.4           | Study principles optics.  |
| 5.5           | Know commonly used ophthalmic medical terms.  |
| <b>Unit-6</b> | <b>Routine and Emergency procedure</b>  |
| 6.1           | Know to assess patient's general condition.   |
| 6.2           | Identify signs and symptoms of critically ill patient.  |
| 6.3           | Practice Measurement of various parameters. (Temp., Pulse, Respiration, B.P. Skin complexion, level of consciousness) |
| 6.4           | Check level of consciousness of patient conscious, unconscious, semiconscious, Comatose.                              |
| 6.5           | Check body odor and breath odor.  |
| 6.6           | Practice methods of Transport of sick, wounded and critically ill patients.   |
| 6.7           | Study various methods of O <sub>2</sub> supply  |



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| 6.8  | Practice Starting of IV line listing the steps and precaution taken.  |
| 6.9  | Study Collection and Labeling with proper dispatch (Blood, urine Vomits).   |
| 6.10 | Know how to deal with medico legal cases and with concerned agencies (Police, judiciary, local self Govt. Public NGO) |

| <b>864: Technical Field Techniques and Procedures</b> |  |
|---|--|
| <b>Unit-1</b>   | <b>Hospital lab Techniques and Procedure</b>   |
| 1.1   | Know laboratory set up and its requirements.   |
| 1.2   | List laboratory equipment.   |
| 1.3   | Know Operation of above equipment, and gadgets for operation.  |
| 1.4   | Know methods of collection, labeling and preservation of samples like blood, urine, sputum Stool and Body fluids.  |
| 1.5   | Study Blood banking techniques & its Principles.   |
| 1.6   | Study Blood- grouping - matching cross matching, preservation of blood and Blood products.   |
| 1.7   | Prepare smears and their staining.   |
| 1.8   | Study Record Keeping, preparation reports and printing them.   |
| 1.9   | Study basic principles Of Microbiology.  |
| 1.10  | Know Ward Procedures : <ul style="list-style-type: none"> <li>• IV Methods and IV fluids</li> <li>• Urinary Catheter, Ryle's tube, its complications and confirmation of placement.</li> <li>• Oxygen</li> <li>• Basic monitoring</li> <li>• Dressing and antiseptics</li> <li>• Enema</li> </ul> Know Patient Care : <ul style="list-style-type: none"> <li>• Hygiene</li> <li>• Washing, Bathing, Sponging, Hair Wash, Mouth Care, Nail Cutting and Back Care</li> <li>• Interpersonal relation</li> <li>• Ethics</li> </ul> |
| <b>Unit-2</b>   | <b>Study trauma condition and trauma emergency procedure</b>   |

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|               |   |
|---------------|---|
| 2.1           | <ul style="list-style-type: none"> <li>• Types of trauma</li> <li>• Causes</li> <li>• Effect and emergency level</li> <li>• Treatment procedure</li> </ul>  |
| <b>Unit-3</b> | <b>X-Ray and Sonographic Techniques</b>   |
| 3.1           | Study Elementary Principles of physics Pertaining to above procedures.  |
| 3.2           | Know checking procedures of X-Ray and Sonographic machines.   |
| 3.3           | Understand precaution, hazards, Dos & Don'ts associated with the above procedures.  |
| 3.4           | Carry out cleaning of relevant machines to the extent permissible by respective manufacturer.   |
| 3.5           | Advantage of x-ray and solography in various conditions, Dry and store them the form of X- Ray plates and Digital images on CD.   |
| 3.6           | Know X-Ray, Sonography, radiation dosages, safety limits of equipment.  |
| <b>Unit-4</b> | <b>Computer Science &amp; Technology</b>  |
| 4.1           | Know input output devices & peripherals of a computer.  |
| 4.2           | Know hardware of computer e.g. CPU, Motherboard, AGP cards, Sound cards, Modems, Keyboards, Mouse, Printers, FDD, HDD, RAM/ROMS. Video display Units, SMPS, UPS, CD RW Driver and Scanner.  |
| 4.3           | Know general Operating system of computer.  |
| 4.4           | <p>Know recording device as Thermal photo, inkjet and laser and dot matrix printers.</p> <ul style="list-style-type: none"> <li>• Operate each of them.</li> <li>• Carry out Installation, Maintenance and cartridge alignments and installation in printers.</li> <li>• Carry out chart - paper loading unloading for above printers.</li> </ul> |
| 4.5           | Take back up of Data / Images as Data managements Systems in soft, hard, Magnetic and optic storage devices.  |
| 4.6           | Office Tools, word processor and Spread sheet.  |

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| <b>865: On field Training Hospital Assistant and Technician</b> |   |
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|   | One month Training in General Hospital ( Out Door and In Door) and/ or Medical Camps.<br>Report Writing on Practical Experience gained.<br>Patients' Record.<br>Practical Exam will be conducted based on report prepared by the candidate. |

| <b>866: Yoga, spiritual studies and managerial studies</b> |  |
|--|--|
| <b>Unit-1</b>  | <b>Communicational Skill</b>   |
| 1.1  | Verbal and Nonverbal communication.  |
| 1.2  | General correspondence and reporting related to health assistance ship.  |
| 1.3  | Manners: Telephonic and personal.  |
| <b>Unit-2</b>  | <b>Acquaintance with Managerial and Administrative Organization</b>  |
| 2.1  | Awareness of administrative structure with various designations and posts.   |
| 2.2  | Information of Hospital setup.   |
| <b>Unit-3</b>  | <b>Professional Awareness and Self-Employment</b>  |
| 3.1  | Duties and responsibilities of Health Assistant Technician.  |
| 3.2  | Awareness of self-employment in the same profession  |
| <b>Unit-4</b>  | <b>Yoga, Spiritual Development</b>   |
| 4.1  | Pawanmuktasan (Toe bending and Ankle bending, Ankle rotation and Ankle crank, knee bending and knee crank, dynamic spinal twist, Half butter fly and knee rotation , Full butter fly, crow walking , hand clenching and wrist bending, wrist rotation, elbow bending and solder socket rotation, neck movement.) |
| 4.2  | Shaktibandha Exercises: (naukasanchalana; chakki chalana, pulling the rop, chopping wood, namaskara, vayunishkasana, udarakarshan asan.)   |
| 4.3  | Shavasana  |

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| 4.4           | Practice of Yogic breathing :<br>(Pre-pranayam exercise, Advice and Precautions, Nadishodhan pranayam, Sheetal pranayam, Sheetkari pranayam, Bhramari pranayam, Bhastrika pranayam, Kapalbhathi pranayam, Ujjayi pranayam, Suryabheda pranayam, Moorchha pranayam) |
| <b>Unit-5</b> | <b>Ophthalmic Techniques and procedures</b>  |
| 5.1           | Prepare patients for refraction checkup.   |
| 5.2           | Use manual refract meter.  |
| 5.3           | Use computerizes refract meter.  |
| 5.4           | Study principles optics.   |
| 5.5           | Know commonly used ophthalmic medical terms.   |
| <b>Unit-6</b> | <b>Routine and Emergency procedure</b>   |
| 6.1           | Know to assess patient's general condition.  |
| 6.2           | Identify signs and symptoms of critically ill patient.   |
| 6.3           | Practice Measurement of various parameters. (Temp., Pulse, Respiration, B.P. Skin complexion, level of consciousness)  |
| 6.4           | Check level of consciousness of patient conscious, unconscious, semiconscious, Comatose.   |
| 6.5           | Check body odor and breath odor.   |
| 6.6           | Practice methods of Transport of sick, wounded and critically ill patients.  |
| 6.7           | Study various methods of O <sub>2</sub> supply   |
| 6.8           | Practice Starting of IV line listing the steps and precaution taken.   |
| 6.9           | Study Collection and Labeling with proper dispatch (Blood, urine Vomits).  |
| 6.10          | Know how to deal with medico legal cases and with concerned agencies (Police, judiciary, local self Govt. Public NGO)  |

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### Suggested List of Practical's:

| 861: Primary Patient Care and Preventive Medicine                          |  |
|--|--|
| 1  | Demonstrate resuscitation procedures on a dummy patient.   |
| 2  | Immobilize the fractured limb wound of wounded patient.  |
| 3  | Demonstrate dressing of "wounds" of patient at various sites   |
| 4  | Measure the B.P. of patient with sphygmomanometer and digital instruments.                               |
| 5  | Measure pulse of the patient at various sites  |
| 6  | Measure temperature of patient at two sites  |
| 7  | Demonstrate first aid procedure on a fictitious patient  |
| 8  | Transport a fractured patient from one room to another room.   |
| 9  | Transport an unconscious patient from one room to another room.  |
| 862: Physiology, Anatomy, Hygiene, Nutrition and Biomedical Waste Disposal |  |
| 10   | Show the position of different organs of the body  |
| 11   | Identify and show sense organs   |
| 12   | Identify different bones of the body   |
| 13   | Identify different joints of body  |
| 14   | Identify location of major arteries of the body  |
| 15   | Study structure of different muscles.  |
| 16   | Identify different body postures   |
| 17   | Study central nervous system of the body.  |
| 18   | Identify and name major or important muscles.  |
| 19   | Identify and separate given biomedical waste.  |
| 863: Clinical Field Techniques and Procedures                              |  |
| 20   | Check the equipment, consumables and disposables conforming to prepare ideal checklist identifying them. |
| 21   | Test the ICCU equipment multi parameter Monitor, declare ok  |
| 22   | Test and calibrate the Defibrillator M/C in ICCU.  |
| 23   | Study various methods of Oxygen supply.  |
| 24   | Carry out preventive maintenance of oxygen supply.   |
| 25   | Prepare dressing tray, IV tray, Ryle's Tube and Urinary Catheter.  |

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| 26  | Preserve, label and forward the collected samples of patients.   |
| 27  | Determine level of consciousness of the patient  |
| 28  | Measure Temp, BP, Pulse and Respiration Rate of the Patient using respective instruments.                |
| 29  | Identify and operate for test the OT instruments.  |
| 30  | Transport / shift the critically sick patient from one room to another.                                  |
| 31  | Check the equipment, consumables and disposables conforming to prepare ideal checklist identifying them. |
| 864: Technical Field Techniques and Procedures      |  |
| 32  | Study the developing techniques of X-ray plates.   |
| 33  | Record the X-ray image on CD using computer.   |
| 34  | Print the stored image of CD using computer & printer.   |
| 35  | Identify and test computer Input Output Devices of given computer system.                                |
| 36  | Prepare peripheral blood smear from the given blood sample.  |
| 37  | Load the chart paper in the given ECG machine.   |
| 866: Yoga, spiritual studies and managerial studies |  |
| 38  | Report the Patient's condition to a family doctor.   |
| 39  | Communicate to the specialist for an emergency situation of cardiac                                      |
| 40  | Study hospital / Hierarchical / Operational Organization setup   |
| 41  | Perform different Assans.  |

**Note:** A report in the form of Journal that get accessed by subject teacher.

### Subject Course Committee:

| Sr. No | Name                | Designation & Address                      |
|--------|---------------------|--|
| 1      | Mr Tejas Pandya     | Principal, Bankers Technical Institute.    |
| 2      | Mrs Senjal Paghadal | Nursing Tutor, Bankers Technical Institute |
| 3      | Ms Kunjal Dodiya    | Nursing Tutor, Bankers Technical Institute |
| 4      | Ms Nikee Prajapati  | Nursing Tutor, Bankers Technical Institute |

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### Invited Experts:

| <b>Sr. No</b> | <b>Name</b>          | <b>Designation &amp; Address</b>      |
|---------------|----------------------|---------------------------------------|
| 1             | Mr Rajan M. Gohil    | Principal, GTHS, Gheekanta, Ahmedabad |
| 2             | Mr Rajesh K. Jethava | Principal, GTHS, Vadodara             |