

Date and List of Topics for Interview for the Selection of Assistant Prof. (on contract) in TEQIP Institutions for the Interview Centre NIT Durgapur

Presentation: Power point presentation for maximum 15 mints., choosing any one of the following topics for their individual department where he/she applied.

(1) Department: Chemical Engineering

Eligible Candidates: Chemical Engineering, Bio-Chemical Engineering, Petroleum Engineering, Bio-Tech. Engineering

Date of Interview: 13.12.2017

Sl. No.	Name of the Topics
1	Heat Transfer
2	Mass Transfer
3	Fluid Mechanics
4	Reaction Engineering
5	Chemical Process Technology
6	Process Control and Instrumentation
7	Petroleum and Petrochemical Engineering
8	Environmental Biotechnology
9	Bioreactor Design and its operation
10	Enzyme technology (production, kinetics and stabilisation)

(2) Department: Chemistry

Date of Interview: 12.12.2017 & 13.12.2017

Sl. No.	Name of the Topics
1	Hydrogen bonding-theory and application in chemistry and biology
2	Theory on reaction rate (thermal or photochemical or charge transfer)
3	Importance of polarisation and overvoltage in electrochemistry
4	Crystal field and ligand field theory of coordination complexes.
5	Pericyclic reaction and correlation diagram
6	Methods for determining reaction mechanism with specific example
7	Approach towards synthesis of complex organic molecule based on disconnection approach
8	Structure-functional relationship of polymeric molecules
9	Approach towards second law of thermodynamics
10	Organometallics-structure and application

(3) Department: Civil Engineering

Date of Interview: 13.12.2017 & 14.12.2017

Sl. No.	Name of the Topics
1	Deflection of Beams
2	Limit state method design of RC beam
3	Earthquake resistant design of building
4	Flexibility and stiffens matrix approach
5	Cross drainage works
6	Waste water treatment
7	Shear failure and soil stabilization
8	Highway geometric design
9	Plane table survey
10	Uniform open channel flow

(4) Department: Computer Science & Engineering

Eligible Candidates: Computer Science & Engineering and Information Technology

Date of Interview: 12.12.2017 & 13.12.2017

Sl. No.	Name of the Topics
1	Data Structure
2	Algorithms
3	Discrete Structures
4	Computer Organization & Architecture
5	Digital electronics
6	DBMS
7	Theory of Computation
8	Microprocessor
9	Software Engineering
10	Networking

(5) Department: Electrical Engineering

Eligible Candidates: Electrical & Electronics Engineering & Electrical Engineering

Date of Interview: 11.12.2017 & 12.12.2017

(A) Electrical & Electronics Engineering

Sl. No.	Name of the Topics
1	Electrical Circuits
2	Analog Electronics
3	Power Systems Analysis
4	Digital Electronics
5	Power System Operation and Control
6	Power Electronics
7	Embedded System
8	Energy Systems
9	Control Systems
10	Measurements and Instrumentation

(B) Electrical Engineering

Sl. No.	Name of the Topics
1	Electrical Circuits
2	Electrical Machines
3	Power Systems Analysis
4	Power Systems Protection
5	Power System Operation and Control
6	Power Electronics
7	Embedded System
8	Energy Systems
9	Control Systems
10	Measurements and Instrumentation

(6) Department: Electronics and Communication Engineering

Eligible Candidates: Electronics & Telecommunication Engineering & Electronics Engineering

Date of Interview: 13.12.2017

Sl. No.	Name of the Topics
1	Transistor Biasing
2	Electronic Oscillator Design
3	Overview of Network Theorems

4	Feedback in Amplifier
5	Operational Amplifier and Applications
6	Maxwell's Electromagnetic Theory
7	Transmission lines at radio frequencies
8	Antennas Parameters
9	Source Coding Theorem
10	Linear Block Codes
11	Frequency Modulation Fundamentals
12	Fourier Transform and its Application in signal Analysis
13	Digital Communication Fundamentals
14	Fibre optics and Optical communication
15	Satellite Communication
16	Analog Integrated Circuits
17	Introduction to Microprocessors
18	Introduction to Signals and Systems
19	Fundamentals of Analog VLSI
20	Introduction to Digital VLSI

(7) Department: English

Date of Interview: 14.12.2017

Sl. No.	Name of the Topics
1	Romantic idea of imagination
2	Metaphysical conceit
3	Second way feminism
4	Indian Writing in English: Scope and Future
5	Future of new Literatures
6	Intertextuality in Contemporary literature
7	Religion and Myths
8	Globalization and Multiculturalism
9	Deus ex machina
10	Post nine eleven literature.

(8) Department: Geology

Eligible Candidates: Applied Geology & Geology

Date of Interview: 14.12.2017

Sl. No.	Name of the Topics
1	Role of sedimentary primary structure in palaeocurrent analysis.
2	Relation between mineralisation and plate tectonics.
3	Textures of igneous rocks.
4	Classification of mineral based on SiO ₄ tetrahedral sharing.
5	Groundwater movement
6	Resistivity survey

7	Hydrothermal deposit
8	Geological aspects of construction of Dam and Reservoir
9	Geological considerations of construction of tunnel
10	Erosional and depositional features of Running water

(9) Department: Instrumentation Engineering

Eligible Candidates: Electronics & Instrumentation Engineering, Electronics Instrumentation & Control Engineering and Instrumentation Engineering

Date of Interview: 11.12.2017

Sl. No.	Name of the Topics
1	Sensor and Transducer
2	Operational Amplifiers
3	Energy Meter
4	Analog to Digital Converters
5	Microprocessor/Microcontroller
6	Instrument Transformers
7	Measurement of liquid flow
8	PID Control
9	Programmable Logic Controller (PLC)
10	Electro Cardio Gram (ECG)

(10) Department: Metallurgical and Materials Engineering

Eligible Candidates: Metallurgy & Ceramics

Date of Interview: 14.12.2017

(A) Metallurgy Engineering

Sl. No.	Name of the Topics
1	Kinetics of Iron-ore Reduction
2	Thermodynamic and Kinetic Considerations of S & P Removal in Steel Making
3	Near Net Shape Casting of Steel
4	Alternative routes of Iron and Steel Making
5	Solid State Phase Transformation in Steel
6	X- Ray Crystallography
7	Synthesis of Cast Metal Matrix Composites
8	Secondary Steel Making Processes
9	Relevance of Powder Metallurgy Route in Metallurgy
10	Phase Equilibria in Material System

(B) Ceramic Engineering

Sl. No.	Name of the Topics
1	Synthesis , Processing and Characterization of Advanced Ceramics
2	Ceramic Nano Composites
3	Nano Glass Ceramics
4	Structure of Ceramic Materials
5	High Temperature Engineering Ceramics
6	Oxidation and Corrosion of Ceramics
7	Refractory for Metallurgical Furnaces
8	Wear out Phenomena of Castable in Iron and Steel Industry
9	Ceramic Matrix Composite
10	Ultra High Temperature Ceramics.

(11) Department: Mathematics

Date of Interview: 14.12.2017 & 15.12.2017

Sl. No.	Name of the Topics
1	Differential Equation
2	Integral Transform
3	Calculus
4	Linear Algebra
5	Complex Analysis
6	Optimization
7	Real Analysis
8	Probability
9	Numerical Analysis
10	Abstract Algebra

(12) Department: Mechanical Engineering

Eligible Candidates: Automobile Engineering, Mechanical Engineering & Production Engineering

Date of Interview: 12.12.2017 & 13.12.2017

(A) Mechanical Engineering

Sl. No.	Name of the Topics
1	Design of Helical Spring
2	Design of Helical Gear
3	Design of Journal
4	Design of Rolling Contact Bearing
5	Single Point Cutting Tool

6	Casting Defects
7	Euler's Head for Rotodynamic Machines
8	Momentum Equation for real fluid in three-dimensional form
9	Second Law of Thermodynamics
10	Otto Cycle & Diesel Cycle

(B) Automobile Engineering

Sl. No.	Name of the Topics
1	Two Strokes and Four Strokes Engine
2	Super Charging & Turbo Charging
3	Driveline and its components
4	Auto power transmission

(C) Production Engineering

Sl. No.	Name of the Topics
1	Cold Rolling vs. Hot Rolling
2	Single Point Cutting Tool
3	Jigs & Fixtures
4	MMAW
5	Testing of Welding
6	Casting Defects
7	Machine Tool Dynamometer

(13) Department: Physics

Date of Interview: 11.12.2017 & 12.12.2017

Sl. No.	Name of the Topics
1	Introduction to Quantum Physics & Photoelectric effect
2	Dielectrics and its applications
3	Superconductivity
4	Laser and its applications
5	Optical fiber and its applications
6	Interference & Diffraction and its applications
7	Electromagnetic theory
8	Acoustics and its applications
9	Origin of magnetism
10	Laws of thermodynamics

(14) Department: Textile Technology

Eligible Candidates: Textile Chemistry

Date of Interview: 15.12.2017

Sl. No.	Name of the Topics
1	Latest Quality Standards of Yarn and fabric
2	Quality Assurance in Apparel Industry
3	Melange Yarn Manufacturing Process
4	Quality aspects of Cotton Melange yarn
5	Manufacturing process of Compact yarn
6	Fabric Inspection Method
7	Quality Requirements of Yarn for Knitting and Weaving Industry
8	Fabric manufacturing Process
9	Safety and Hazards in Textile processing Industry
10	Yarn Mercerisation Process and Fabric Mercerisation Process
11	Standard Operating Procedures for Textile yarn manufacturing Industry
12	Compact yarn manufacturing Technology

N.B. List of topics for Food Technology consult with VNIT.