

**JADAVPUR UNIVERSITY**  
**KOLKATA – 700032**

**Admission Notice FET/1/13 dt. 28.03.2013**

On Line Application Forms are invited from the Indian Nationals for admission to 1<sup>st</sup> year (2013-14 Session) of following courses:

**5-year B. E. (Evening) in Civil, Electrical & Mechanical.**

**Eligibility:**

**5-year B.E. (Evening) Degree course in Civil, Electrical & Mechanical:-**

Candidates who have passed with 1<sup>st</sup> class (2<sup>nd</sup> class for SC/ST) Diploma Examination of National Council of Education, Bengal/an Indian University/Government/Statutory Board, in Civil, Electrical or Mechanical Engineering or have passed with 1<sup>st</sup> class (2<sup>nd</sup> class for SC/ST), B.O.A.T. Examination for Diploma in Mechanical or Electrical Engineering or equivalent Diploma in relevant subject recognized by the University and actual employment in service are eligible to apply. The students who will be admitted are required to submit 'No Objection Certificate' for the course of study from the employer at the time of admission.

1. Candidates are advised to apply online through university website for admission in 5-year B.E. (Evening) Degree course in Civil, Electrical and Mechanical Engg. for the session 2013-14. On Line Application and other documents are available in our University Website [www.jadavpur.edu](http://www.jadavpur.edu) OR <http://admission.jdvu.ac.in> from **28.03.2013 to 16.04.2013. Last Date of submission of Application is 16.04.2013.**

Candidates are advised to download the Information Brochure and Pay-in-Slip of State Bank of India for deposit of Application Fee. The amount of application fee of Rs.300/- and need to pay an additional Bank Charge of Rs.25/- for each course of study is to be deposited through any branch of State Bank of India by filling up the Pay-in-slip. The Journal Number must be legible in the pay-in-slip, which is needed to be used to filled in Application Form online and for other references. The applicants are requested to keep the counterfoil of the deposit slip for future reference. Candidates should carefully read the instructions given in the **APPLICATION PROCEDURE** in the online system before filling up the Application Form.

2. **Date of Admission Test: 11.05.2013 (Saturday).**

3. **List of Selected candidates for Interview will be displayed at the University website as well as Notice Board of Faculty of Engg. & Tech. tentatively on 11.06.2013 (tentatively).**

SC/ST reservation is as per rules. It is to be noted that Ragging is prohibited as per decision of the Supreme Court of India in Writ Petition No. (C) 656/1998. For detail information please visit our website – Principal Secretary, F.E.T.

## **INFORMATION BROCHURE**

### **INFORMATION BROCHURE ON ENTRANCE EXAMINATIONS FOR ADMISSION TO 5-YEAR B.E. EVENING DEGREE COURSES IN CIVIL, ELECTRICAL AND MECHANICAL ENGINEERING.**

**Steps to follow the Important Instruction:**

- 1) **The candidates have to apply online only.**
- 2) **Register your name in the online system to obtain registration number & give your pass word.**
- 3) **Remember your registration number as well as password for further login and communication.**
- 4) **Candidates are allowed to apply only one registration for application form.**
- 5) **Login with registration number and pass word to fill the application form.**
- 6) **Upload your recent photograph.**
- 7) **Select your course/s.**
- 8) **Printout the Pay-in-Slip to deposit the application fee of Rs.300/- and need to pay an additional Bank Charge of Rs.25/- at any branch of the State Bank of India.**
- 9) **Again enter your registration number and password to fill up form completely.**

- 10) Finally submit your form.
- 11) After submission of an application no options can be changed at the later stage.
- 12) Take print out of your application form.
- 13) Computer generated print out page of application form signed by the candidate and application part of the pay-in-slip duly signed by the Bank must reach the following address on or before 16<sup>th</sup> April 2013:
- Principal Secretary,  
Faculty Council of Engg. & Tech.,  
Jadavpur University,  
Kolkata – 700032, West Bengal.**
- 14) Candidates can apply only through Online Application Interface for 5-years Evening Degree Courses in Civil, Electrical and Mechanical Engineering Courses – 2013 from 28<sup>th</sup> March, 2013 to 16 April, 2013.
- 15) The list of eligible candidates for Admission Test will be displayed on the Jadavpur University website before the scheduled date of admission test.
- 16) Applicants are requested to download their admit-card and bring his/her admit card to the examination hall after filling up his/her name, roll number and pasting the self attested recent photograph on the admit-card.
- 17) Submission of On line application does not confer any right on the Applicant for being issued the Admit card and also for being called for Admission Test. Application fee is not refundable under any circumstances.
- 18) Applicants are requested to bring BLCK/BLUE ball point pen and to be answered the question/s using Block/Blue ball point pen.
- 19) Selection for interview will be made on the results of Admission Test. Failure to appear at the interview will cancel the right of the candidate for admission.

- 20) The selected candidate for interview must produce a Salary Certificate and a No-objection Certificate from Employer for pursuing studies in the Five year Evening Engineering Degree Course (from 6 p.m. to 9 p.m. on all week days and from 2 p.m. to 5 p.m. on Saturdays) of Jadavpur at the time of interview and also at the time of Admission.
- 21) All Original and attested copies of Mark sheet and certificates (i.e. Madhyamik or equivalent, Higher Secondary and Diploma examination etc.) are to be produced at the time of interview and also at the time of Admission.
- 22) SC/ST/PC Certificate, if any, issued by appropriate authority in the name of the candidate must be produced at the time of Interview and also at the time of Admission.
- 23) Hostel accommodation is not available.
- 24) Original and attested copy of Physically Challenged Certificate issued by appropriate authority of Govt. of West Bengal in the name of the candidate seeking admission under Physically Challenged Quota, are to be produced at the time of the Interview and Admission.
- 25) As per circular No. BC-16014/1/82-SC dt.06/08/1984 & BCD-I, D.O.12017/11/89-SCD (R.CELL) dt.08/01/1990 and letter No. 1510-SCW dt. 31/05/2007 from the Government of West Bengal, Scheduled Caste/ Scheduled Tribe Persons of the State other than West Bengal are not entitled to get benefits of the State for SC/ST reservation in Educational Institutions in West Bengal.
- 26) Submission of application does not confer any right on the applicant for being issued with Admit Card and also for being called for Interview/admission. Application fee is not refundable under any circumstances.
- 27) Selection for interview will be made on the results of Entrance Examination. Selection for admission will be made at the interview. Failure to appear at the interview the right of the candidate for admission will be cancelled.
- 28) The candidates are requested to be in actual employment during the course of Study.

**Eligibility:** Candidates who have passed with 1st class (2nd class for SC/ST), the Diploma Examination of National Council of Education, Bengal/an Indian University/Government/Statutory Board, in Civil, Electrical or Mechanical Engineering or have passed, with 1st Class (2nd Class for SC/ST), the BOAT. Examination for Diploma in Mechanical or Electrical Engineering or equivalent Diploma in relevant subject recognized by this University and are in actual employment are eligible to apply. The students admitted under this scheme are required to be in employment during the course of study.

**Entrance Examination:**

1. The candidates have to appear in one written paper for 100 marks and of 3 hours duration.
2. The syllabi and other details of the paper for Civil, Electrical and Mechanical Engineering are given below

**SYLLABUS OF COURSES**

**CIVIL ENGINEERING:**

**Syllabus:**

**Part - A**

**Applied Mechanics:**

Friction between solid bodies; equilibrium of rigid bodies; centre of mass and centre of gravity; work, power and energy; principle of virtual work. Direct and shear stresses, strain elasticity, Hook's law, Poisson's ratio, Young's modulus, modulus of rigidity and bulk modulus, working stress, factor of safety.

Structural elements, BM and SF diagrams theory of simple bending, distribution of bending stresses and shear stresses, Principal stresses and principal planes, Mohr's circle, Moment of internal section modulus, radius of gyration, torsion of circular shafts.

Use of simple column formula.

Solution of determinate trusses.

Fluid Mechanics - Pressure at a point, Pascal's law of pressure within a static fluid, buoyancy, stability of submerged and floating bodies; Steady and unsteady flow, uniform and nonuniform flow, laminar and turbulent flow, Reynolds number.

**Part - B**

**General Civil Engineering:**

Surveying Correction for measured length by chain and tape, Field problems and their solutions, Compass Traversing, Closing error in compass traverse and its correction, Levelling, Cross-section Longsection, measurement of areas, plane table surveying, Contouring.

### **Planning and Construction:**

Brick Bonding, types of ordinary foundations, shoring and timbering, D.P.C. Flooring, Plastering, Whitewashing, skirting, Dado, Layout of water and sanitary lines in residential building, Water closets, Intercepting chambers. Connection of house drains to streets sewers.

### **Irrigation:**

Methods of irrigation, water requirement of crops, ground water- well hydraulics, Design of irrigation canal systems.

### **Sanitary Engg.:**

Sewers, sewer appurtenances, different system of sewerage, sewage BOD of sewage, Aerobic and Anaerobic process fundamentals fundamentals of septic tanks, activated sludge and trickling filters. Demand of water, potable water, source of water, development of ground water sources, impurities in natural waters, water works intake, slow sand filter, rapid sand filters, disinfection of public water supplies, causes and removal of hardness.

### **Soil Mechanics:**

Formation, identification and classification of soils. Three phase system Water content, void ratio, degree of saturation, Bulk density etc. Limits of consistency. Total and effective stress.

### **Roads and Railways:**

Roads and Railways Survey, Construction and maintenance, Road permanent way structures with formation, Road and Railway crossings road inter-sections and Railway Track connections of various types road signs, Railway signals, Railway yards, road metals and their specifications, parts of Culverts.

## **ELECTRICAL ENGINEERING:**

## All questions are to be answered

### Syllabus:

- 1. Units and dimension:** work, power and conversion among electrical, mechanical and thermal energies.
- 2. Direct current circuits:** steady state and transient response of dc circuits.
- 3. Magnetic circuits:** Electromagnetics, mmf calculation, lifting power of magnets.
- 4. Alternating current circuits:** steady state response of single phase circuits; series and parallel resonance, balanced three phase circuits; active and reactive power in three phase circuits and their measurement.
- 5. Network theorems:** star-delta conversion; superposition, reciprocity Thevenin, Norton and maximum power transfer theorem applied to direct and alternating current circuits in steady state.
- 6. Measuring instruments:** working principles and constructional features of instruments used for measurement of current, voltage and power in dc and ac circuits, extension of instrument range, use of shunt and multipliers. CT and PT.
- 7. DC generators and motors:** construction, classification, operating principles and characteristics of dc machines, Starters and regulators; Swinburner's test.
- 8. Transformers:** single phase and three phase transformer construction, classification, operating principles, emf equation equivalent circuit, expression for efficiency, regulation and their maximum values, open circuit and short circuit tests.
- 9. Induction and synchronous machines:** rotating magnetic field, construction of squirrel cage and slip ring induction machines, operating principles, equivalent circuit, torque-slip characteristics, no-load and blocked rotor test of induction machine, construction and operating principle of synchronous machine, pitch and distribution factors, emf equation, voltage regulation and its determination by synchronous impedance method.
- 10. Generation, transmission and distribution:** Thermal, hydraulic and nuclear power station, layout diagram, demand and diversity factors, plant capacity and load factors, calculation of voltage drop and efficiency in short transmission line, two wire dc and single phase ac distributor, underground and submarine cables, relay, operating principles of different types of circuit breakers, isolator, symmetrical short circuit study, short circuit capacity, recovery and restriking voltage.
- 11. Semiconductor devices:** Simple diodes and transistors, rectifier, oscillator and amplifier circuits. Thyristor and its application only.

## **MECHANICAL ENGINEERING:**

### **SYLLABUS:**

#### **Applied Mechanics & Machine Design Group:**

Equilibrium equations (2D problem), Friction, Properties of surface, Velocity and acceleration of particle for motion in straight, and circular path, Newton's laws of motion, Energy and momentum conservation. Stress, strain, Hook's law, Thermal stress, Statically indeterminate problem, Strain energy, Torsion of Circular shaft, bending moment and Shear force diagrams, bending stress, Deflection of beam, (method of integration and method of superposition), Short and Long column, Design considerations, Theories of failure, Concept of factor of safety, design of rivets, Cotter joints, Knuckle joints, flange couplings. shafts, pulleys and pipes.

#### **Fluid Mechanics, Fluid Machines & Thermal Engg. Group;**

Properties of fluid, measurement of pressure, Hydrostatic equation, Total fluid pressure on plane and curved surfaces, Centre of pressure, Buoyancy, stability of floating bodies, types of fluid flow, Continuity equation, total energy of flowing fluid, Bernoulli's equation, Measurement of flow in closed conduits and open channels (Orifice/ Venturi meter, notches), measurement of velocity (Pitot tube), Impact of Jet on surfaces, pipe friction equation, Head losses in pipes, Minor losses, pipe line problems, Open channel flow (Chezy's and Manning's equation), Centrifugal/Reciprocating pumps - pump work, efficiency, power, Pelton turbine/Francis turbine - working principle, Velocity diagram, Work done, efficiency Draft tube, specific speed, Hydraulic accumulator, Fluid coupling, Hydraulic press, intensifiers.

Heat, Temperature, Gas laws, Laws of thermodynamics, energy and entropy, Properties of steam, enthalpy and dryness fraction of steam, Description, and principle of working of different types of boilers, boiler fittings and their mountings, Steam power cycles and Air standard cycles. Introduction to reciprocating air compressor.

Air refrigeration (Bell Coleman cycle) including problems, Principle of vapour compression refrigeration, systems.

#### **Production Engineering Group;**

Operational features of basic machine tools like lathe, shaper, planer, drilling machine, grinding machines, milling machines, broaching machine, boring machines. Cutting tools - their profiles, material and heat treatment.



Theory of metal cutting - basic elements of machining, chip formation and types of chips, machinability and machinability index, cutting fluid.

Press Work - Principle of blanking, piercing, drawing, bending, embossing, coining.

Press tools - dies & punch.

Principles of Jigs & Fixtures.

Basic idea of (I) nontraditional machining like EDM, ECM, USM, LBM

(ii) CNC machine tools.

Iron - Carbon equilibrium diagram - heat treatment of steel.

General Principles of moulding methods & Pattern making,

33 marks types of pattern, pattern allowances - Core making and use -

Casting processes like Sand Casting, Die Casting, Centrifugal

33 marks Casting Investment 'Casting - Casting defects & remedies.

34 marks Mechanical working of metals - forging, extrusion, rolling.

Welding and allied processes Gas Welding, arc welding,

resistance welding, thermit welding, soldering, brazing - welding defects & remedies.

Industrial Management - Organisation structure & design organisational behaviour - Basic principles of production management, materials management, marketing management, financial management, PERT, CPM - Safety & environment management. Metrology - principles and uses

•of micrometer, vernier calliper, screw pipe gauge, depth gauge, height gauge, sine bar - Surface finish concept of interchangeable system and limits, fit & tolerance. Estimating & Costing of materials for different processes.