



INFORMATION BROCHURE

**FOR ADMISSION TO THE PROGRAMMES:
BACHELOR OF ENGG. (CIVIL ENGG.), BACHELOR OF ENGG. (ELECTRICAL ENGG.) & BACHELOR OF
ENGG. (MECHANICAL ENGG.) FOR WORKING PROFESSIONALS**

**UNDER
FACULTY OF ENGINEERING & TECHNOLOGY (FET)**

FOR THE SESSION 2025-2026

**JADAVPUR UNIVERSITY
KOLKATA – 700 032**

1. **GENERAL INFORMATION FOR APPLICANTS:**

The Information Brochure is for admission to the Five Year's Programmes for Bachelor of Engg. (Civil Engg.), Bachelor of Engg. (Electrical Engg.) & Bachelor of Engg. (Mechanical Engg.) for working professionals under Faculty of Engineering & Technology (FET), Jadavpur University for the session 2025-2026. All the programmes are 10-semester programmes with the classes to be conducted from 6:00pm to 9:00 pm from Monday to Friday and 2:00pm to 5:00pm on Saturday. Field works / Academic Tours of Civil Engineering to be conducted on Sundays as and when stipulated in the curriculum.

2. **ELIGIBILITY CRITERIA:**

A] The candidates must have Passed Diploma Examination from the UGC recognized Indian University or Government / Statutory Body in the same branch to which he/she opts for application with at least 60% marks or equivalent grade point in aggregate for general category and 45% for SC, ST, OBC-A, OBC-B, PwD candidates. In case final result is published in the Grade Point system only, then the same must be converted to equivalent percentage marks. Conversion of Grade Point to Percentage of Marks, if required, should be done by the applicant during filling up of the form using, either –

- a) The conversion formula of the concerned board/university, if any such is available, OR
- b) By the AICTE advised formula, as $\text{Percentage marks} = (\text{Grade Point} - 0.75) \times 10$ when Grade Point is in a scale of 10.

In case, the Grade Point is not in a scale of 10, the obtained Grade Point is to be converted to Grade Point in a scale of 10 in a pro rata basis.

B] Minimum of One Year Full time / Regular Working Experience after completion of qualifying Diploma Examination, as on 01/08/2025 (i.e., last dt. of application). The candidate must be currently engaged as working professional in Registered Industry / Organization (Central / State) / Private / Public Limited Company / MSMEs located within 50 KM radial distance from the university.

3. **RESERVATION OF SEATS:**

- 1) Reservation of seats for admission will follow the relevant guidelines, as applicable.
- 2) As per circular no. BC-16014/1/82-SC dated 06/08/1984; BCD-I, D.O.12017/11/89-SCD (R.CELL) dated 08/01/1990; 1465-BCW/MR-67/10 dt.30/04/2010 and letter no. 1510-SCW dated 31/05/2007 of the Government of West Bengal, **Candidates with reservation certificates (SC/ST/OBC/PwD/EWS) issued by any state other than West Bengal are not entitled to reservation in such seats in Higher Educational Institutions in West Bengal.**
- 3) **SC / ST / OBC Reservation:** The concerned candidate shall have to furnish copies of a valid SC/ST/OBC certificate in his/her name issued by the competent authority as per the rule. The reservation certificate not fulfilling essential criteria or not issued by the competent authority will be rejected, and the candidate will not be considered under the reservation category.
 - 3.1) Reservation of Seats for Scheduled Cast (SC) and Scheduled Tribe (ST) is as per relevant rules and guidelines.
 - 3.2) The reservation for Other Backwards Class (OBC) category in the admission process is carried forward subject to orders passed by the Hon'ble Calcutta High Court dated 22/5/2024 (which has been challenged before the Hon'ble Supreme Court of India)
 - 3.3) **OBC certificates MUST be updated with the latest (issued on or after 19 June 2025) Non-Creamy Layer (NCL) certificate (as per standard government proforma) issued by the competent authority, and both the original OBC certificate and updated NCL certificate must be submitted together.**
- 4) **PwD Reservation:** Reservation in PwD seats will be available for the following types of disabilities as specified in relevant acts and rules, with the percentage of disability being not less than 40%. The types of disabilities are – Locomotor disability; Visual impairment; Hearing impairment; Speech & language disability; Intellectual disabilities; Mental illness; Disabilities caused due to chronic neurological conditions and blood disorders; Multiple disabilities including deaf blindness.
 - 4.1) PwD certificates are to be issued by any of the authorities as given in the Order No. 289- HF/O/PHP/IR- 05/2017 dated 29.08.2018 of the Government of West Bengal, Health & Family Welfare Department (PHP Branch)

- 5) **EWS Reservation:** The EWS reservation can be availed upon production of a gross annual family income certificate and asset certificate, as per the order no. 325-PAR(AR)/3P-1/2019 dated 09/07/2019 of the Government of West Bengal in the prescribed format, **issued on or after 01 April 2025** by the competent authorities.

Note: Reservation Certificate issued by any person other than the competent authority (including BDO/ Jt. BDO or any other state or central government official or elected persons like Municipality Chairman, Panchayat Pradhan, MP, MLA or Minister of State or Central Government) will not be entertained.

4. **ENTRANCE EXAMINATION AND PREPARATION OF MERIT LIST**

Entrance Examination:

Entrance examination will be conducted in physical mode at **TEQIP Building (3rd Flr.), Jadavpur University (Main Campus), 188 Raja S C Mullick Road, Kolkata 700032, West Bengal, India.**

Exam method: MCQ based questions & OMR like Tick Mark (✓) based evaluation.

Exam date and time: 13th August 2025, 12:00 noon to 1:30 p.m.

Marking scheme: 50 MCQ questions (100 marks)- Each question will carry 2 marks. Negative marking for each question will be 0.5. Multiple answer for single question will be treated as 'Not Answered'.

Calculator, Electronic gadgets, Mobile or, any Digital device will not be allowed in the examination hall. Syllabus for the entrance examination: the details are provided below. (Annexure- 1)

Merit List:

Merit List will be prepared on the basis of the performance in the Entrance Examination. The modalities of entrance examination will be published / informed in due time.

In case of any tie in the merit list prepared on the basis of the above criteria, the following parameter may be used in the given order to break such tie.

- Percentage of marks (for CGPA/Grade Point conversion rule as mentioned in Point No 2 will be followed) in qualifying Diploma examination.
- Percentage aggregate marks of secondary or equivalent examination (in case of the mark sheet having the marks in grade system, it MUST be converted to equivalent percentage marks by using the formula of the respective board)
- Date of Birth (Person born earlier will get higher preference)

5. **DOCUMENT VERIFICATION AND ADMISSION:**

Scanned copies of the following documents (150 dpi colour in pdf format) are to be mandatorily uploaded along with the application. The maximum size of the uploaded file should not exceed 500KB. In case any such is of multiple pages the same should be scanned as a single pdf. All scanned documents should be properly legible. Illegible supporting document may lead to cancellation of the candidature without any further communication.

- a) Valid Photo ID card issued by the Government or ID card of last attending College.
- b) Admit-card / Certificate of Secondary (or equivalent) Examination for Date of Birth Proof, Mark sheet of Secondary (Class-X) or equivalent Examination.
- c) Mark-sheet of Higher Secondary or equivalent (Class-XII) Examination, if applicable
- d) Final Mark-sheet or, Mark sheets of all semesters of Diploma in Engineering Examination.
- e) Valid SC / ST / OBC / EWS Certificate issued by competent authority of the Government of West Bengal in case 'candidate category' is SC / ST / OBC / EWS.
- f) Valid PwD (Person with Disability) Certificate issued by competent authority of Government of West Bengal in case 'PwD category' is 'Yes'.
- g) Recent Passport Photograph of the candidate (same as used for online application)
- h) Signature of the candidate
- i) Employment cum No Objection Certificate from the present employer.
 - 1) Authenticity proof from the present employer in the form of either –
 - Form-16 or any other IT document of the applicant containing the name of the employer
 - Certified copy of the Registration / Trade license / GST certificate / PAN / TAN document of the employer
 - 2) All previous experience certificate(s) or joining and release letter(s) clearly indicating the date of joining and leaving to the organization(s).

- a) **Provisional merit list will be published on the basis of marks obtained in the entrance test following tie-breaking rules and candidates will be invited for participating in admission procedure (off line) according to provisional merit list.**
- b) Provisional admission will be offered after verification of relevant original documents only in the admission procedure (offline). During the admission procedure the original of the following documents will be checked for verification of relevant verified.
 - i. Family Income Certificate from the competent authority
 - ii. 5 (five) copies of passport size photograph with full frontal view (same as used for online application)

And
self-attested copies of –

 - iii. Admit-card / Certificate of Secondary (or equivalent) Examination for Date of BirthProof
 - iv. Mark sheet of Secondary or equivalent (Class-X) Examination
 - v. Mark-sheet and Certificate of Higher Secondary or equivalent (Class-XII) Examination, if applicable
 - vi. Final Mark-sheet and Certificate of Diploma in Engineering Examination
 - vii. Valid SC / ST / OBC / EWS Certificate issued by competent authority of the Government of West Bengal in case 'candidate category' is SC / ST / OBC / EWS.
 - viii. Valid PwD (Person with Disability) Certificate issued by competent authority of Government of West Bengal in case 'PwD category' is 'Yes'
 - ix. Admit card of Entrance Examination duly signed by the Invigilator.
 - x. Employment cum No Objection Certificate from the present employer.
 - i) Authenticity proof from the present employer in the form of either –
 - Form-16 or any other IT document of the applicant containing the name of the employer
 - Certified copy of the Registration / Trade license / GST certificate / PAN / TAN document of the employer
 - ii) All previous experience certificate(s) or joining and release letter(s) clearly indicating the date of joining and leaving to the organization(s).
- c) If at any point of time it is found that the candidate has not fulfilled any of the required criteria or have suppressed any information/document or have submitted wrong information/document, his/her admission as well as studentship may be cancelled without any communication.
- d) After successful submission of the application, the applicant must take a printout of the form and this has to be provided as documentary evidence for all subsequent communication, if any.

6. **FEES:**

- **An application fee of Rs. 500/- (Five hundreds only) has to be paid at the time of application for admission to UG (Evening) Engg. programmes of Jadavpur University.**
- **On Clicking the Final 'Submit' of the Application Form the candidate will be directed to the Payment Gateway.**
- Then the candidate MUST have to complete the online payment of the Application Fee through Credit Card / Debit Card / Internet Banking.
- No other form of online payment, like UPI, etc., should be attempted.
- The success of the payment solely depends on the payment gateway and the bank. Jadavpur University FET admission team is in no way responsible for any unsuccessful payment.
- During this payment process, the candidate must not press the back / refresh button or force exit from the application. This will cancel the application form fill-up, and the candidate needs to start afresh by filling out the application form.
- If the application is closed due to any unsuccessful payment, the filled-out application form will not be saved, and the candidate will have to start afresh in this case.
- **On successful payment, the candidate will be redirected to their dashboard, and there a message will indicate that the application has been successfully submitted, along with the list of courses applied for.**

The candidates found eligible for admission need to pay Rs. **3860.00** (Rupees Three Thousand Eight Hundred and Sixty only) as Admission Fee and charges for the First Year of study.

7. **IMPORTANT INFORMATION:**

- The Application will be through online mode only, and the admission test and final admission will be in person at the university campus as per the schedule.

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- All admission-related communication/notification from the university, including publication of the detailed schedule, list of candidates at all stages, merit lists, selection lists, etc., will be notified in due time only on the JU-FET admission portal <https://admissionju.jadavpuruniversity.in/fengadmission/>
- Individual communication with the candidates, if required, will be made through their e-mail id registered during application. Queries received through email at ug5enquiry@jadavpuruniversity.in will be addressed within 2 working days' time, if found rational and valid. No other mode of communication will be entertained by the admission helpdesk. No in-person queries will be entertained.
- The admission schedule will follow the chart as given in the Brochure. In case of any unavoidable change, the same will be notified on admission portal only.
- An incomplete application may be rejected without any communication.
- Any wrong information furnished or suppression of information, if detected at any point of time, may lead to cancellation of the application or admission without any correspondence.
- Submission of application or fulfillment of eligibility criteria or rank in the merit list to be published does not confer any right of the applicant to be considered for admission.
- The Admission Committee reserves the right of not selecting any candidate who is found ineligible after verification of original document or physically unfit or otherwise unsuitable. The decision of the competent authority of the university in the matter of admission is final and binding. For any query and/or grievances mails may be sent to the following helpdesk email id with the subject matter "Query regarding Admission to 5-Year UG Engg. Degree Programme". Communication of any other form including telephone or mails sent to any other address or with different subject heading will not be entertained.

Helpdesk email: ug5enquiry@jadavpuruniversity.in

8. **Anti-Ragging:**

Ragging is not only a social evil but also a penal offence. Any student/s indulging in ragging of any student/s including freshers' during admission/interview and/or subsequently at the hostel or in the class or in the corridors or anywhere inside and outside of the campus, shall be dealt with punishment ranging from loss of academic year/loss of hostel boardership to expulsion from the university itself. Reporting to the Police Station may also be made in addition to the above punishment.

The University follows all the directives of the "UGC REGULATION ON CURBING THE MENACE OF RAGGING IN HIGHER EDUCATIONAL INSTITUTIONS, 2009 under the direction of the Hon'ble Supreme Court of India. All the details, including the names and phone numbers of the members of the Anti-Ragging Committee and Anti-Ragging Squad, are available in the link: https://admission.jdvu.ac.in/UGC_JU_Anti-ragging.pdf

9. **Withdrawal & Refund:**

Withdrawal of student ship, including refund of course fees, if any, will be as per UGC and university guidelines, and any admitted student willing to withdraw the student ship must contact the Muster Roll (MR) section of the university in person and/or, follow notification in the university website.

10. **Seat Matrix for 5-Year UG Engg. Degree Programmes for Working Professionals:**

Course	General	OBC	SC	ST	EWS	Central Govt. Orgn. (Other)	Total
Civil Engg.	28+1 (PWD)	4	11+1(PWD)	3	5	1	54
Electrical Engg.	28+1 (PWD)	4	11+1(PWD)	3	5	1	54
Mechanical Engg.	28+1 (PWD)	4	11+1(PWD)	3	5	1	54

11. Tentative schedule of the Admission Process

[The schedule may be changed under unavoidable circumstances and will be notified online]

Sl. No.	Activity	Date
01	Publication of Admission Notification (Website / Newspaper)	17/07/2025
02	Opening of online Application form on Admission Portal	18/07/2025
03	Last date of online submission of Application Form	01/08/2025
04	Publication of the list of applicants submitting the application form	04/08/2025
05	Issuance of Admit Card for Entrance examination	07/08/2025
06	Grievances, if any, regarding non-receiving of admit cards, with documentary evidence of submission	09/08/2025
07	Date of Entrance examination	13/08/2025 (12:00 noon to 1:30 p.m.)
08	Publication of Provisional Merit List and notification for Physical verification–cum-Provisional Admission	20/08/2025
09	Physical verification–cum-Provisional Admission for selected candidates	25/08/2025 (11:00 a.m. to 4:00p.m.)
10	Declaration of vacancies	26/08/2025
11	Physical verification–cum-Provisional Admission for waitlist candidates (if any)	28/08/2025 (waitlisted candidates must report by 11 a.m.)
12	Date of Commencement of classes	01/09/2025

Candidates selected for provisional admission and waitlisted candidates must report on notified date & time. Otherwise candidature will be cancelled.

Annexure 1

Syllabus

- The syllabus is different for different branches of engineering.
- The detailed syllabus of different branches are given below:

A]

Electrical Engineering

Electrical Circuit & Network: Basic Concepts, Series and Parallel AC circuits, Series and Parallel resonance, AC and DC circuits analysis, Network Theorems, Transient in DC Circuit, Laplace Transform, Two port network

Electrical Machines: Mechanism of Electro-Mechanical energy conversion, DC Generator and Motor, Single phase Transformer, Three phase Transformer, Auto transformer, Scott Connection, Open Delta Connection, Three-Phase Induction Motor, Alternator, Synchronous Motor, Single phase motors, Special Motor.

Transmission and Distribution of Power: Basics of Power Transmission, Layout, Transmission Line Components, Transmission Line Parameters, Underground Cables, Performance of Transmission Line, Extra High Voltage Transmission, Components of Distribution System, Substations.

Switchgear and Protection: Necessity & functions, Circuit interrupting devices, Circuit breakers, Auto-reclosing, Protective Relaying, Over current relay, Directional Relay, Distance Protection Scheme, Differential Relay, Static over current relays, Generator protection, Transformer protection, Protection of Busbar & transmission line, Over voltage Protection.

Electrical Measuring Instruments: Fundamentals and Basic Requirements, Measurement of single phase and three phase Current, Voltage, Power and Energy, Measurement of Resistance, Single phase and three phase Power Factor Meter, Digital Multimeter, Sychronoscope. Instrument Transformer: CT and PT.

Electrical Measurement & Control: Transducers: Types, Classification, Transducer for measurement of Temperature, Pressure, Velocity, Speed, displacement; Capacitive and Piezoelectric transducer, load cell, Tachometer, Electromagnetic and turbine flow meter; Signal conditioning: Concept, AC and DC signal conditioning, Instrumentation Amplifier, Filters, Digital instruments and Display Devices; Pilot Devices: Push Button, Limit Switch,

Float Switch, Electromagnetic Relay, Pressure switch, Thermostats plugging switch, Proximity switch; Control System: Classification, Feedback control system, idea on stability, Control system components, Concept of transfer function, poles and zeroes, transfer function of first & second order system, time response characteristics of first and second order system to unit step excitation, Block diagram representation of control system, Stability concept, ON/OFF, P, PI, PD, PID controller.

Utilization, Traction, Heating and Drives: Illumination: Terms Used in Illumination, Laws of Illumination, Different types of lamps, Electric Heating, Resistance Heating, Arc Heating, Induction Heating, Dielectric Heating, Electric Welding, Electric Drives, Electric Traction, Traction Mechanics, Traction Motors, Economic Aspects of Utilising Electrical Energy

Power Plant Engineering: Basics of Power Generation, Thermal Power Stations, Nuclear Power Stations, Hydro Power Stations, Diesel Electric Power Stations, Gas Turbine Power Plants, Non-Conventional Energy Sources, Solar Energy, Wind Energy, Economics of Power Generation, Interconnected Power Systems.

Basic Electronics: Semiconductor Diode, Zener Diode, Rectifiers & Filters, Bipolar Junction Transistor (BJT), Field effect transistor (JFET), Unijunction transistor (UJT), Biasing of BJT, Regulated Power Supply, Small Signal Amplifiers.

Power Electronics & Drives: Thyristor (SCR), Switching & Timer Circuits, AC to DC Converter, Inverter, DC Chopper, DC & AC Drives, Uninterrupted power supply.

Applied and Digital Electronics: Power Amplifiers, FET Amplifier, Operational Amplifier, Feedback Amplifiers & Oscillators, Boolean Algebra & Combinational Logic Circuits, Sequential Logic Circuits, Data Converters & Memory Devices.

Microprocessor and microcontroller: Microprocessor Basics, Microprocessor Programming, Application of microprocessor, Microcontroller Basics, 8051 addressing modes and instructions, 8051 interrupts, Application.

B| CIVIL ENGINEERING

Part A: Strength of Materials and Engineering Mechanics- 20 marks (10 questions)

Part B: Other Civil Engineering Subjects (80 Marks, 40 questions) comprising of:

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, Hooke'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:

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 Long section, measurement of areas, plane table surveying, Contouring.

Planning and Construction:

Brick bonding, types of ordinary foundations, shoring and timbering. D.P.C. Flooring. Plastering, White washing. 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 Engineering:

Sewers, sewer appurtenances, different system of sewerage, sewage BOD of sewage, Aerobic and Anaerobic process fundamentals of septic tanks, activated sludge and trickling filter. 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 Intersections and Railway Track connections of various types road signs, Railway signals, Railway yards, road materials and their specifications, parts of Culverts.

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C] Mechanical Engineering

I. Applied Mechanics and Machine Design:

Sl.No.	Subject	Course Content
1.	Engineering Mechanics	Basic engineering mechanics, statics, vectors, kinematics and kinetics, work-power-energy.
2.	Strength of Materials	Stress-Strain relations, bending & shear stress, deflection of beam, torsion, column & struts, Spring.
3.	Theory of Machines	Kinematic pair, links, mechanisms, inversions, velocity and acceleration analysis, Cam follower, Power Transmission: Belt, Gear, Flywheel, Governor, Brakes, Dynamometers, Clutch, Balancing and Vibration.
4.	Design of Machines Elements	Introduction, Static & Dynamic loads, Theories of Failure, Cotter Joint, Knuckle Joint, Shafts, Keys and Couplings, Spur Gears, Pulley, Fasteners, Bearings.
5.	Mechanical Engineering Drawing	Projection, orthographic views, Development of Surfaces, Intersection of Solids, Drawing conventions, Limit-Fit-Tolerances-Surface Roughness, Sectional views, Assembly drawing, Part Drawing and detailing. AutoCAD basics.

II. Fluid Mechanics-Hydraulics and Heat Power:

Sl.No.	Subject	Course Content
1.	Fluid Mechanics	Properties of Fluid, Fluid pressure and pressure Measurement, Types of Fluid Flow, Flow Through Pipes.
2.	Hydraulic Machines	Impact of Jets, Turbines, Centrifugal pumps, Reciprocating Pumps.
3.	Hydraulic System	Components of Fluid Power Systems (pump/compressor, pipe fittings, etc.
4.	Thermodynamics	Laws of Thermodynamics, Properties of Perfect Gas, Properties of Steam, Carnot Gas Power Cycle and Carnot Vapour Power Cycle, Rankine Cycle.
5.	Boilers & Steam Condenser	Boiler types, accessories & mountings, Performance, Draught, feed water treatment, high pressure boiler. Condenser Type, Working Principle, Efficiency, Leakage, Draught and Cooling Towers.
6.	Refrigeration	Measurements of refrigeration, Refrigerant, Air Refrigeration cycles, Vapour Compression Refrigeration, Applications.
7.	IC Engine	Air-standard cycles, 2-stroke & 4-stroke engines, Valve Timing Diagram, Scavenging, Preignition, Detonation, Supercharging, Turbo-charging, Simple Carburettor, M.P.F.I. and Fuel Injection.
8.	Gas Turbine	Gas Turbine Cycle & Processes, Thermal Efficiency, Classification and Applications, Closed Cycle & Open Cycle Gas
9.	Hydraulic Turbines:	Water Turbines, Velocity Diagrams, Work done, Power and Efficiency of turbine.
10.	Power Plant Engineering	Steam, Nuclear, Gas turbine - power plant, non-conventional power.

IV. Production:

Sl.No.	Subject	Course Content
1.	Manufacturing Processes	Classification of manufacturing processes - Shaping process, Joining & Finishing process, Casting, Forging, Rolling & Extrusion, Machine Tools – Lathe, Drilling, Milling, Welding, Shaping.
2.	Mechanical Engineering Materials	Engineering Materials, Crystal Structures, Phase Transformation & Heat treatment, Surface hardening, Alloys, Polymers and Composites.
3.	Jigs Fixtures, CNC	Jig and fixture, principle of location. Concept of NC & CNC, Advantages & Disadvantages.
4.	Metal Cutting	Metal cutting, Tool wear, Machinability, Tool materials, Cutting Tool Geometry.
5.	Industrial Management	Types of Business, Management Principles, Organizational Structure, Human Resource, Materials Management, Safety Engineering
6.	Material Handling	Material handling Systems & Selection, Hoisting & Conveying Machinery, Surface Transportation Equipment.
7.	Production Management	Production System, Plant location, Plant layout, Process Planning, Production Planning and Control, Work Study, Maintenance of machine Tools, Quality Control.