INDIAN INSTITUTION OF INDUSTRIAL ENGINEERING

Internal Assignment for IIIE Students (Revised Syllabus)

February- 2027 Examination

The Internal Assignment for Foundation Course will be required to be submitted by those students appearing for February 2027 exam. All eligible students are hereby directed to submit the completed Internal Assignment for the subjects they are appearing for February 2027 exam on or before **10th December 2026**. Assignments are an important aspect of examinations. It is obvious that if you get good marks in assignment your overall percentage shall improve. The weightage for the Internal Assignment will be 20% of the total marks in the respective subject. Internal Assignments are attached below

INSTRUCTIONS FOR INTERNAL ASSIGNMENT

Submission of Assignment is Compulsory. If Assignment not submitted, such students shall be given ZERO (0) marks.

1. **Students have to pass individually total 40 marks in each subject, written exam 80% and in Assignment 20% weightage.**
2. **Assignment is compulsory only for the subject's students appearing for Exam.**
3. **It will be the responsibility of student to appear or not to appear for the written paper if he / She has NOT SUBMITTED ASSIGNMENT in time as per instructions. IIIE shall not be responsible for the consequences.**
4. **Please write carefully your Name, Student membership number, Subject name on each Subject Assignment. Please take printout of first page and fill all details before tape binding the assignment pages.**
5. **It is advised that assignment should be written on the format page given below with this. All assignments to be separately submitted for each subject in a format pages. Write down on both sides of the papers.**
6. **The fees for Internal Assignment will be Rs.200/- per subject. This is to be paid through Demand Draft or Online only (Cheque payment will not be accepted) DD drawn in favour of Indian Institution of Industrial Engineering, payable at Mumbai and sent along with Assignment. Write your name and membership number on the back side of the Demand Draft, Online payment / transaction details should be attached with assignment. Bank details are given below for Online payment.**

   Name of Account: Indian Institution of Industrial Engineering
   Current Bank A/c No.: 00 5320 100000 720
   Bank Name: Bank of India
   Branch: Belapur, Navi Mumbai 400 614
   IFSC : BKID0000053

7. **Solve the questions as per instructions (do not leave any questions or sub questions). Detailed answers are expected. Keep sufficient gap between answers of different questions.**

8. **The paper should be written neat and clean. Leave left margin, top margin and bottom margin. Write up should be legible. Solve all questions sequence wise (from 1 to 7 in ascending order).**
9. **The expected length of the answer shall depend upon the nature of the question.**
10. **Answers shall include the definition, Diagrams, Tables, examples, etc. depending on the nature of the question. Do not waste your time in decorating assignments.**
11. **IE005: Engineering Drawing & Computer Graphics assignment, student may use drawing sheets.**
12. **Content that has been directly copied from each other or the Internet will NOT be accepted.**
13. **Assignments that have been copied and shared among student(s) will be automatically rejected and such students are liable for disqualification.**
14. **Ensure that your answers are according to the marks allocated. Students are advised to check their Assignments thoroughly before submitting the same.**
15. **Late submissions up to 15th December 2026 will be accepted with Rs. 200/- per subject as late fees.**
16. **Beyond 15th December 2026 Internal Assignment will not be accepted.**
17. **It is necessary to keep Xerox Copy of all documents (Assignments and DD) with you for your reference and safety.**
18. **The following Front Cover & second page is Compulsory should be Attached with Each Internal Assignment.**
19. Write page number from first page of Assignment like Page No 1/20, 2/20 etc & assignment to be written on printed format A4 size page only and bind properly.
20. All students are hereby informed that **Internal Assignments must be submitted in tape binding** only. Ensure that the binding is **neat and secure**. Submissions in spiral, stapler, or loose format will not be accepted. Assignments not submitted in tape binding will be considered incomplete.



Sample of Tape Binding

If students still have any doubt, they may call or email their queries to Controller of Examinations, IIIE.

Sd/-
Controller of Examinations

NOTE: DOWNLOAD THE BELOW PAGE FOR WRITING ASSINGMENTS.

STUDENT ASSIGNMENT FOR

FEBRUARY-2027 EXAMINATION

(REVISED SYLLABUS)

Student Name : _____

Membership No. : _____

Section : _____

Subject Code & Name : _____

Assignment Payment Details UTR No. / DD No. _____

Bank Name : _____

Payment Date : _____

Signature of the student with date _____

Student Membership Number-					
QUESTION NO	(a)	(b)	(c)	(d)	TOTAL MARKS (To be filled by Examiner)
CANDIDATE NEED TO TICK IF ATTEMPTED					
1					
2					
3					
4					
5					
6					
7					
TOTAL MARKS: -					

SIGNATURE OF THE EXAMAINER WITH DATE

Student Membership No: **Subject Code & Name :**

Section: Foundation Course. (February -2027 Exam)

TAPE BINDING

TAPE BINDING

Student Membership No: **Subject Code & Name :**

Section: Foundation Course. (February -2027 Exam)

Mandatory Format for who have done online payment for Internal Assignments February- 2027 Examination.

- Student Name: _____
- Student Membership No. : S-_____
- Section: _____
- Online Transaction Date: _____
- Amount Transferred (Rs.)_____
- Transaction ID/UTR/UPI/IMPS or Neft No._____
- Total Nos. of Assignments: _____

Important Notice: Transaction details hard copy should be submitted along with Assignment (Don't paste hard copy on Assignment) and soft copy of the same (transaction details) to be sent through e-mail to iiiereceiptdept@gmail.com is compulsory.

Date: -_____ Signature of Student

N.B.: This requirement of account section so please submit properly.

INDIAN INSTITUTION OF INDUSTRIAL ENGINEERING

GRADUATESHIP EXAMINATION

Internal Assignment for February-2027 (Revised Syllabus)

Foundation Course

IE001: BUSINESS COMMUNICATION

Max. Marks: 140

Instruction: All questions are compulsory.

Q1 a) Discuss the significance of written communication for engineers in preparing reports, proposals, manuals, and project documentation. (10)

b) Explain different forms of non-verbal communication such as body language, gestures, posture, facial expressions, eye contact, and appearance. (10)

Q2 a) Discuss the importance of clarity, brevity, and coherence in Precis Writing. (10)

b) Compare business letters, memos, and reports with respect to purpose, structure, and applications. (10)

Q3 a) How does the Case Method of Learning enhance critical thinking, problem-solving, communication, and decision-making skills? Illustrate with suitable examples. (10)

b) Evaluate the effectiveness of the Case Method of Learning as a teaching tool in management and engineering education. Discuss its benefits, challenges, and future relevance. (10)

Q4 a) Discuss how presentations contribute to effective communication in organizations. (10)

b) Evaluate the significance of presentation and negotiation skills in today's corporate environment. Discuss their role in leadership, decision-making, and organizational effectiveness. (10)

Q5 a) What are the different types of interviews? Explain the key communication skills, etiquette, and behavior required to perform effectively in interviews. (10)

b) Explain the stages of case preparation and analysis with reference to best practices and common mistakes to avoid. (10)

Q6 a) Explain how companies and industries use digital platforms for internal and external communication. Illustrate your answer with suitable examples. (10)

b) In today's rapidly changing world, technology has become an integral part of our daily lives. From communication and education to healthcare and business, technological

advancements have transformed the way people work, learn, and interact. The internet has made information readily accessible, enabling individuals to acquire knowledge from anywhere in the world. Online learning platforms have expanded educational opportunities, allowing students to learn at their own pace and convenience.

In the business sector, technology has improved productivity and efficiency through automation, digital communication, and data management systems. Companies can now collaborate across geographical boundaries using video conferencing and cloud-based tools. Similarly, advancements in healthcare have led to better diagnostic techniques, improved treatment methods, and enhanced patient care.

Despite these benefits, technology also presents several challenges. Excessive dependence on digital devices can lead to reduced physical activity, social isolation, and various health concerns. Issues such as data privacy, cybersecurity threats, and the spread of misinformation have become significant concerns for individuals and organizations alike. Furthermore, rapid technological changes require continuous learning and adaptation, creating challenges for those who struggle to keep pace.

Therefore, while technology offers numerous advantages and opportunities for progress, it must be used responsibly and ethically. A balanced approach that maximizes benefits while minimizing risks is essential for sustainable development and societal well-being.

Reduce the passage to approximately one-third of its original length (about 200 words) and provide a suitable title. (10)

Q7 a) What is advanced visual support in business presentations? Explain its importance and discuss various tools and technologies used to enhance presentation effectiveness. (10)

b) Evaluate the importance of business etiquette and ethics in creating a positive organizational image and maintaining stakeholder trust. (10)

INDIAN INSTITUTION OF INDUSTRIAL ENGINEERING

GRADUATESHIP EXAMINATION

Internal Assignment for February-2027 (Revised Syllabus)

Foundation Course

IE002 ELEMENTS OF INDUSTRIAL ENGINEERING

Max. Marks: 140

Instruction: All questions are compulsory.

Q1	a)	Explain briefly tools and techniques of Industrial Engineering.	(10)
	b)	Explain various functions of industrial engineer.	(10)
Q2	a)	Explain different ways to increase machine and labor productivity	(10)
	b)	Explain various factors which influence the productivity	(10)
Q3	a)	Define work study. What are the objectives of work study.	(10)
	b)	Explain two handed process charts with suitable example and appropriate symbols with their meaning	(10)
Q4	a)	Define work sampling. Explain the procedure to calculate standard time using work sampling.	(10)
	b)	Explain Multiple activity chart with suitable example and appropriate symbols	(10)
Q5	a)	Explain different principles of ergonomics.	(10)
	b)	Explain the anthropometric data that can be considered while designing writing table and chair.	(10)
Q6	a)	Explain the material and information flow in a supply chain management.	(10)
	b)	Explain the role of warehouse and its function in logistic management	(10)
Q.7	a)	Explain the terms PMTS	(10)
	b)	Explain key aspects of flexible manufacturing system	(10)

INDIAN INSTITUTION OF INDUSTRIAL ENGINEERING

GRADUATESHIP EXAMINATION

Internal Assignment for February-2027 (Revised Syllabus)

Foundation Course

IE003 Mathematics for Engineers

Max. Marks: 140

Instruction: All questions are compulsory.

Q1 a) If $u = \log(x^3 + y^3 + z^3 - 3xyz)$, prove that (a) $\frac{\partial u}{\partial x} + \frac{\partial u}{\partial y} + \frac{\partial u}{\partial z} = \frac{3}{x+y+z}$ (10)

b) Find the values of the constants a and b such that $\lim_{x\to 0} \frac{a\cosh x - b\cos x}{x^2} = 1$ (10)

Q2 a) Obtain the equation of the pair of tangents drawn from the point (6,8)(6,8)(6,8) to the circle $x^2 + y^2 = 25$. (10)

b) Find the angle between the radius vector and the tangent to the curve

$\frac{2a}{r} = (1 - \cos\theta)$ and find the slope at $at\theta = \frac{2\pi}{3}$. (10)

Q3 a) .If u = cos-1 $\left(\frac{x}{y}\right)$ + tan-1 $\left(\frac{y}{x}\right)$, Prove that $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} = 0$ (10)

b) Evaluate $\int_0^1 \int_0^{\sqrt{1-x^2}} \int_0^{\sqrt{1-x^2-y^2}} \frac{dzdydx}{\sqrt{1-x^2-y^2-z^2}}$ (10)

Q4 a) Expand $f(x) = \begin{cases} 1+2x & in \quad -3 \le x \le 0 \\ 1-2x & in \quad 0 \le x \le 3 \end{cases}$ as a Fourier series and hence deduce that

$\frac{\pi^2}{8} = \frac{1}{1^2} + \frac{1}{3^2} + \frac{1}{5^2} + ...$ (10)

b) A rectangular box open at the top is to have a volume of 32 cubic feet. Find the dimensions, if the total surface are is minimum.

(10)

Q5 a) Find the work done in moving a particle in the force field $\vec{F} = 3x^2 i + (2xz - y)j + zk$ along the curve defined by $x^2 = 4y,\ 3x^3 = 8z$ from x=0 to x=2. (10)

b) Find the directional derivative of $\phi = 4xz^3 - 3x^2y^2z$ at (2,-1,2) along $2i - 3j + 6k$ (10)

Q6 a) Find Laplace transform of $t^3 e^{2t} \sin 3t.$ (10)

b) Find the Inverse Laplace Transform of (10)

$$\frac{4s+5}{(s+1)^2(s+2)}$$

Q.7a) Solve the system of equation using Cramer's rule

$$x+y+z=9,\ \ x-2y+3z=8,\ \ 2x+y-z=3$$ (10)

b) Find the inverse of the matrix (10)

$$\begin{bmatrix} -2 & 2 & -3 \\ 2 & 1 & -6 \\ -1 & -2 & 0 \end{bmatrix}$$

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GRADUATESHIP EXAMINATION

Internal Assignment for February-2027 (Revised Syllabus)

Foundation Course

IE004: Computers & Information Technology

Max. Marks: 140

Instruction: All questions are compulsory.

Q1	a)	Explain the different steps involved in an Instruction Cycle.	(10)
	b)	Define Microprocessor. Explain how it connects with other parts of a computer in detail.	(10)
Q2	a)	Explain the Instruction Format and Instruction Set.	(10)
	b)	Explain the difference between Impact printers and Non-Impact printers with examples.	(10)
Q3	a)	What is an Operating System? Differentiate between Time-Sharing and Real-Time Operating Systems.	(10)
	b)	Explain the main functions and advantages of a File Management System.	(10)
Q4	a)	Define Programming Language. Enlist and explain the various types of programming languages.	(10)
	b)	Explain SQL fundamentals with suitable examples.	(10)
Q5	a)	What is a Local Area Network (LAN)? Explain the basic components required to set up a LAN.	(10)
	b)	Explain voice services and file sharing in computer networks.	(10)
Q6	a)	Explain e-Governance and applications of IT in business.	(10)
	b)	Explain the importance and applications of database applications in in industrial and business environments.	(10)
Q7	a)	Explain the importance and applications of word processing and spreadsheet software.	(10)
	b)	Explain applications of Data Science in Industrial Engineering.	(10)

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GRADUATESHIP EXAMINATION

Internal Assignment for February-2027 (Revised Syllabus)

Foundation Course

IE005 Engineering Drawing & Graphics

Max. Marks: 140

Instruction: All questions are compulsory.

Q1 a) What is the significance of Engineering Drawing? (05)

b) A line AB 60 mm long has its end A 20 mm above HP and 30 mm in front of VP. The line is inclined at 40° to VP and parallel to HP. Draw its projections. (05)

c) A pentagonal plate of side 30mm is placed with one side on the HP and the surface inclined at 50° to HP and perpendicular to VP. Draw the projection of lamina. (10)

Q2 a) Draw the projections of a pentagonal prism, base 25 mm side and axis 50 mm long, resting on one of its rectangular faces on the H.P., with the axis inclined at 45° to the V.P (15)

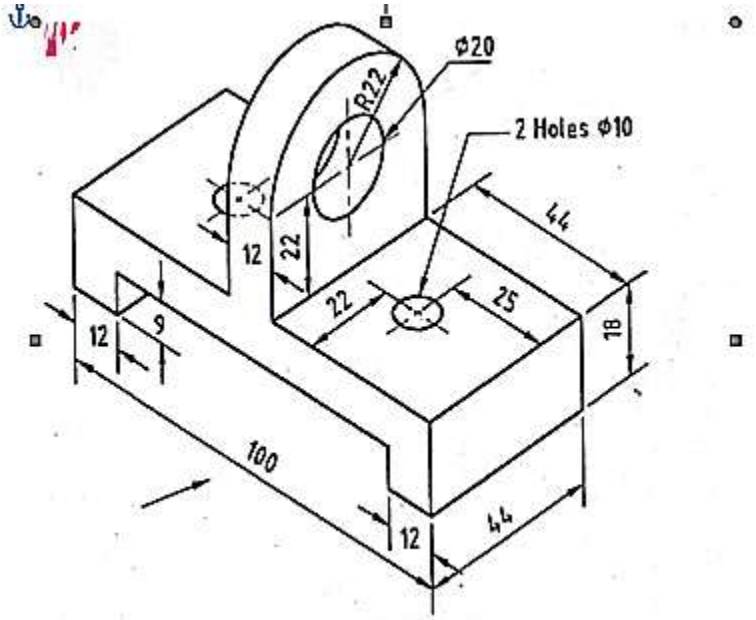
b) Draw the projections of a cylinder, base 40 mm diameter and axis 50 mm long, resting on the H.P. on its base. (05)

Q3 a) Draw isometric projection of cube 50 mm side. (05)

b) Draw 1) Front View in the direction of arrow

2) Top View

3) Right Hand side view of object shown in fig 1. (15)



ISOMETRIC VIEW

Fig 1

Q4 a) Draw the development of a square prism with 35 mm side of base and 65 mm long axis, resting on its base on HP with a rectangular face parallel to VP. (05)

b) Draw the lateral development of surface of a hexagonal prism side of base 30mm, resting at its base in such a way that two of its rectangular faces are parallel to VP. It is cut by an inclined plane making an angle of 45° with HP and passing through a point 15 mm below the top end of the axis. Take the length of axis as 70 mm. (15)

Q5 a) Differentiate between ISO Metric Threads and Square Threads with suitable sketches. Mention their applications. (05)

b) Explain the importance of sectional views in the representation of threaded fasteners. Illustrate with neat sketches. (05)

c) Draw the sectional front view and top view of a Hexagonal Headed Bolt and Nut assembly joining two plates of suitable thickness. Show all proportions as per BIS standards. (10)

Q6 a) Prepare the detailed assembly drawing of a Protected Type Flange Coupling using drawing instruments. Draw the FV in section and SV, (10)

b) Draw the assembly of a Simple Jig used for drilling operations. Show all dimensions, limits, fits, and tolerances according to BIS standards. (10)

Q7 a) The F. V. of line AB, 70 mm long is inclined at 45 degree to XY, measures 50 mm. The end point A is 10 mm above the HP and 20 mm in front of the VP. Draw the projections of line AB and find it's inclination with HP and VP. (10)

b) What are threaded fasteners? Classify them and explain the construction and use of bolt, nut, and washer with sketches. (10)

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GRADUATESHIP EXAMINATION

Internal Assignment for February-2027 (Revised Syllabus)

Foundation Course

IE006 Materials Science

Max. Marks: 140

Instruction: All questions are compulsory.

Q1 a) Give brief overview of Engineering materials and their origin (10)
b) Classify different materials with their applications (10)

Q2 a) Describe role of chemical, physical and mechanical properties in materials. (10)
b) What do you understand from point /line defects in crystals? What are different dislocations? (10)

Q3 a) Explore concept of plastic deformation with neat sketch? How it affects material properties (10)
b) What do you understand from allotropy? Discuss in detail (10)

Q4 a) Draw TTT diagram and discuss it in detail (10)
b) Explain Concept of hardenability and provide details on factors affecting hardenability. (10)

Q5 a) Which are different heat treatments? How they affect material properties? Elaborate in the context of steel and cast iron. (10)
b) Explore different Types of steel, discuss microstructure of any one and typical uses (10)

Q6 a) Classify different rubber materials. What is curing in rubber? Explore any practical application of rubber with stress strain curve (10)
b) Discuss Optical microscopy and Electron microscopy (10)

Q7 a) Explain different types of alloys (10)
b) What do you understand by nitriding heat treatment? How it affects recrystallization? (10)

INDIAN INSTITUTION OF INDUSTRIAL ENGINEERING

GRADUATESHIP EXAMINATION

Internal Assignment for February-2027 (Revised Syllabus)

Foundation Course

IE007: Professional Ethics in Engineering

No Theory Paper Only Internal Assignment

Max. Marks: 140

Instruction: All questions are compulsory.

Q.1	a)	What are the work ethics and morals? Explain how it influences integrity and civic virtue	(10)
	b)	Discuss the role of Yoga and Meditation for Professional Excellence and Stress Management	(10)
Q.2	a)	Compare the Kohlberg's Theory of Moral Development with Gilligan ethics of care.	(10)
	b)	Explain Right Action Theories through different approaches of Self-interest, Customs and Religion	(10)
Q.3	a)	Discuss the roles of engineers as responsible experimenters.	(10)
	b)	What are the professional codes of ethics? Discuss legal and ethical balance in engineering practice.	(10)
Q.4	a)	Explain risk-benefit analysis? Discuss various mitigation strategies	(10)
	b)	What is Confidentiality and Conflict of Interest? Explain occupational crimes and professional responsibilities.	(10)
Q.5	a)	What are computer and environmental ethics? Discuss ethics in multinational corporations	(10)
	b)	Describe code of conduct of ethical leadership, explain Corporate Social Responsibility	(10)
Q.6	a)	Discuss the importance of values like Honesty, Commitment and Empathy in professional workplace	(10)
	b)	Describe engineering ethics and associated ethical dilemmas	(10)
Q.7	a)	Describe nature and responsibilities of engineering as a social experimentation	(10)
	b)	Discuss in details the Employee Rights, Professional Rights and Intellectual Property Rights.	(10)

INDIAN INSTITUTION OF INDUSTRIAL ENGINEERING

GRADUATESHIP EXAMINATION

Internal Assignment for February-2027

Foundation Course

IE008: Soft Skills for Engineers

No Theory Paper Only Internal Assignment

Max. Marks: 140

Instruction: All questions are compulsory.

Q.1	a)	Write a short note component of effective communication	(10)
	b)	Write a short note on barriers of communication	(10)
Q.2	a)	Explain the 4-step method of presentation in detail	(10)
	b)	Write a short note on Nonverbal communication	(10)
Q.3	a)	Explain ethe TOCSE method for structured presentation.	(10)
	b)	Write a short not on techniques on self-awareness in context to communication.	(10)
Q.4	a)	Write a short note on emotional regulation and managing of traits	(10)
	b)	How important is attendance and discipline on professional working environment	(10)
Q.5	a)	Explain the term effective time utilization	(10)
	b)	Explain the term Goal setting strategies in context to self-communication/communication.	(10)
Q.6	a)	Write a short note on characteristic on good and poor listening practices	(10)
	b)	Write a short note positive behavioral development in context to communication	(10)
Q.7	a)	How important is interpersonal skills in developing effective collaboration and communication	(10)
	b)	Write a short note professional ethics	(10)