

GURU NANAK DEV ENGINEERING COLLEGE, LUDHIANA

(An Autonomous College u/s 2 (f) and 12 (B) of UGC Act 1956)

DEPARTMENT OF MECHANICAL ENGINEERING

No. ME/ 36/3026

Dated: 20-07-2018

To

Dean (Academics),
Guru Nanak Dev Engineering College,
Ludhiana

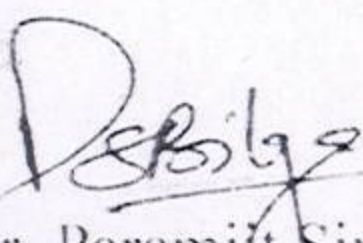
Subject: Minutes of meeting of Board of Studies (Mechanical Engineering) of Guru Nanak Dev Engineering, Ludhiana held on 20.07.2018 (Friday).

Dear Sir,

Please find enclosed herewith minutes of meeting of Board of Studies (Mechanical Engineering) of Guru Nanak Dev Engineering, Ludhiana constituted by Principal vides Office Order No. RK38/2042 dated 16.11.17 held on 20.07.2018 (Friday) at 11:00 pm in the office of Head, Department of Mechanical Engineering, G.N.D. Engineering College, Ludhiana.. This is for your kind consideration and approval from the competent authorities.

Thanking you.

Sincerely Yours


(Dr. Paramjit Singh Bilga)
Chairman, BOS (ME)
Professor & Head

Encl : As above

CC to:

1. Principal for kind information and necessary action.
2. All members BOS (Mech. Engg.)



GURU NANAK DEV ENGINEERING COLLEGE, LUDHIANA

(An Autonomous College u/s 2 (f) and 12 (B) of UGC Act 1956)

DEPARTMENT OF MECHANICAL ENGINEERING

No.ME/ 36/3026

Dated: 20-7-18

MINUTES OF MEETING

A meeting of internal members of the Board of Studies (Mechanical Engineering) of Guru Nanak Dev Engineering, Ludhiana constituted by Principal vide Office Order No. RK38/2042 dated 16.11.17 was held on 20.07.2018 (Friday) at 11:00 am in the office of Head, Department of Mechanical Engineering, G.N.D. Engineering College, Ludhiana.

Following were the agenda points:-

1. To approve the syllabus of subject "ESC-18103 Engineering Graphics and Design" of 1st/2nd Semester B. Tech. (All Branches) Physics/Chemistry Group, Batch 2018 onwards after incorporating comments/ suggestions of external members of BOS.
2. Any other issue with the permission of the Chairman BOS

Following internal members of the BOS were present and actively participated:-

- | | |
|--|-----------------------------------|
| 1. Dr. Paramjit Singh | Chairman |
| 2. Dr. Harwinder Singh | Member |
| 3. Dr. Jatinder Kapoor | Member |
| 4. Dr. Gurdeepak Singh | Member [COE Nominee] |
| 5. Er. G. S. Sodhi/Er. Sukinderpal Singh | Member [Dean (T&P)/Nominee] |
| 6. Er. Aprinder Singh Sandhu | Subject Teacher (Special Invitee) |
| 7. Er. Jaspreet Singh Thind | Subject Teacher (Special Invitee) |
| 8. Er. Puspinder Singh | Subject Teacher (Special Invitee) |

Following members of the BOS couldn't attend the meeting:-

- | | |
|-----------------------------|---|
| 1. Dr. Harmeet Singh | Member |
| 2. Dr. G.S. Brar | Member (Relieved from institution on his own request) |
| 3. Er. Deepinder Singh | Member |
| 4. Dean (Academics)/Nominee | Member |

The minutes of the meeting were as under:-

1. The internal members of the BOS have been undergone through the comments and suggestions of the external members of BOS on the finalized syllabus of subject "ESC-18103 Engineering Graphics and Design". After detailed discussions, the most of the suggestions of the external members have been incorporated and detailed contents have been approved. A copy of approved syllabus of "ESC-18103 Engineering Graphics and Design" is enclosed herewith.
2. The members of the BOS while discussing the contents of this subject have come to conclusion that the Question Paper pattern of End Semester Examination for this particular subject needs to be different than the Question Paper pattern of End Semester Examinations of other subjects for proper evaluation of candidate/s undergone through the theory and practice (drawing) sessions. After detailed discussions, it has been decided unanimously that Question Paper of End Semester Examination for this subject shall consist of the same number of sections (three viz. Section A, Section B and Section C), same allocated marks (12 marks) for Section A only (but different for Section B: 16 marks and for Section C: 32 marks), same maximum marks (60) and same duration (3 hrs) as for the Question Paper of End Semester Examination for other subjects. But the Section A which consists of one question having six (06) sub parts of 02 marks each shall have four questions based on Low Order Thinking

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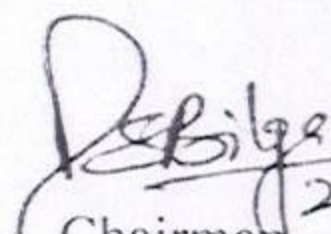
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Skills (LOTS) and two question based on High Order Thinking Skills (HOTS) based upon the Part-I Theory of the syllabus covering both Traditional Engineering Graphics (TEG) and Computer Graphics (CG). On the other hand, Section B which consists of four (04) questions of 04 marks each has to be based upon the Part-I Theory of the syllabus covering Traditional Engineering Graphics (TEG) in sub section B1 as well as Computer Graphics (CG) in sub section B2. In each of these sub sections, there shall be one question based on Low Order Thinking Skills (LOTS) and one question based on High Order Thinking Skills (HOTS). The Section C of the question paper consisting of four (04) questions of 08 marks each based on High Order Thinking Skills (HOTS) only shall be out of TEG topics only of Part-II Practice (Drawing) of the syllabus. It is compulsory for the candidate to attempt all sections of question paper. There shall be no choice of any type in questions of Section A as well as Section B, but in Section C of question paper there shall be internal choice of one question in each question. Further, the candidate's evaluation for computer graphics topics of Part-II Practice (Drawing) portion of the syllabus shall be done internally only during practice sessions. A copy of approved Question Paper pattern of End Semester Examination for this particular subject has been enclosed herewith.


Chairman 20/07/2018
BOS (ME)

Encl.:

1. A copy of approved syllabus of "ESC-18103 Engineering Graphics and Design"
2. A copy of approved Question Paper pattern of End Semester Examination of "ESC-18103 Engineering Graphics and Design."

ME/36/3026
Date 20-7-2018

[Total No. of Questions:]
Uni. Roll No.

[Total No. of Pages:]

Program/ Course: B.Tech. (Sem. 1st/ 2nd)
Name of Subject: Engineering Graphics and Design
Subject Code: ESC-18103
Paper ID:

Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

- 1) All sections are compulsory
- 2) Section- A and Section-B are based on Part – I (Theory) of syllabus [both Traditional Engineering Graphics (TEG) and Computer Graphics (CG)]
- 3) Section-C is out of Part- II [Practice (Drawing)] portion of syllabus (Traditional Engineering Graphics ONLY).
- 4) Any missing data may be assumed appropriately

Section – A [From Part – I (Theory) both TEG and CG]

[Marks: 02 each]

Q1.

- a) Question based on Low Order Thinking Skills (LOTS)
- b) Question based on Low Order Thinking Skills (LOTS)
- c) Question based on Low Order Thinking Skills (LOTS)
- d) Question based on Low Order Thinking Skills (LOTS)
- e) Question based on High Order Thinking Skills (HOTS)
- f) Question based on High Order Thinking Skills (HOTS)

Section – B [From Part-I (Theory) both TEG and CG]

[Marks: 04 each]

Section – B1 (TEG ONLY)

- Q2. Question based on Low Order Thinking Skills (LOTS)
Q3. Question based on High Order Thinking Skills (HOTS)

Section – B2 (CG ONLY)

- Q4. Question based on Low Order Thinking Skills (LOTS)
Q5. Question based on High Order Thinking Skills (HOTS)

Section – C [From Part-II Practice (Drawing) TEG ONLY]

[Marks: 08 each]

- Q6. Question based on High Order Thinking Skills (HOTS)
or
Question based on High Order Thinking Skills (HOTS)
Q7. Question based on High Order Thinking Skills (HOTS)
or
Question based on High Order Thinking Skills (HOTS)
Q8. Question based on High Order Thinking Skills (HOTS)
or
Question based on High Order Thinking Skills (HOTS)
Q9. Question based on High Order Thinking Skills (HOTS)
or
Question based on High Order Thinking Skills (HOTS)

[Signature]
20/7/2018

(6)

ME/36/3026

Date 20-07-2018

B.Tech. (Common) Batch 2018 Onwards

1st/2nd Semester ES-18103 ENGINEERING GRAPHICS AND DESIGN

Internal Marks: 40

External Marks: 60

Total Marks: 100

L	T	P	C
1	0	4	4

Course Outcomes:

At the end of the course, the student shall be able to

1. Understand various terms used in engineering drawing and Interpret the drawing in terms of engineering requirement.
2. Conceptualize, and deliver the fundamentals of engineering drawing for any given application.
3. Apply rules and conventions as per International Standards for engineering drawing.
4. Learn and apply orthographic as well as isometric projections as per engineering requirement.
5. Integrate ideas for offering efficient and effective solutions to the engineering problems.
6. Use computer to draw engineering drawings (2D) and basic 3D models.

PART – I [THEORY]

1. **Introduction:** Drawing equipment/ instruments and their use; Rules and conventional/ symbolic representation related to engineering practices as per international/ national standards SP46:2003 and IS 962-1989. **(02 Hours)**
2. **Theory of Projections:** Concept of projections and its types (orthographic, Isometric, Auxiliary and perspective); System of orthographic projection with reference to quadrants and octants for points, lines, lamina and solids. **(04 Hours)**
3. **Section of Solids:** Definition of sectioning and its purpose; Types of sectional planes and their applications (orthographic) **(02 Hours)**
4. **Development of Surfaces:** Purpose of development; Use of parallel line and radial line methods. **(01 Hours)**
5. **Isometric Views/Projections:** Concept of isometric view/projection; Difference between isometric projection and isometric drawing; Isometric projection of lamina and solids. **(01Hours)**
6. **Computer Graphics and Design:** User graphic interface; Menu system; Toolbar options; Basic initial setting; User coordinate system (UCS) & world coordinate system (WCS) and viewing of the drafting software interfaces; Draw basic entities in 2D, modification, dimensioning and tolerancing of these entities, constraints & parametric dimensioning, methods of zoom and panning; Short cut keys to execute commands and options; Create, edit and use customized layers; Print scale setting; ISO and ANSI standards for coordinate dimensioning and tolerance; Solid primitive's constructions, working with regions, Creating solid model by extrusions, revolutions; Use of extrude and revolve commands as construction tools; Changing properties; Aligning objects in 3D, 3D rotating, 3D mirroring, creating 3D arrays; filleting solid objects, chamfering solid objects, constructing details and features on solid models, and removing details and features; displaying 3D views. **(03 Hours)**

PART-II [PRACTICE (DRAWING)]

1. Planning of drawing sheet layout; Use of scales (IS:10713-1 1983); Technical lettering; Conventional representation of lines as per SP46:2003; Principles of dimensioning. **(04 Hours)**

[Signature]
20/07/2018

(4)

ME/36/3026
Date 20-7-2018

2. **Orthographic Projections of Points:** Practice through problems in quadrants and octants. (04 Hours)
3. **Orthographic Projections of Lines:** Determine/find out true length of line, true angle of inclination of line with HP, true angle of inclination of line with VP, Horizontal Trace of line, Vertical Trace of line for different cases: (i) Line is parallel to both HP and VP (ii) Line is contained by profile plane (iii) Line is parallel to one plane and inclined to other plane (iv) Line is inclined to both HP and VP by Rotation and Trapezoid methods only. (08 Hours)
4. **Orthographic Projections of Lamina:** Practice through various positions: (i) Lamina is parallel to one plane and perpendicular to other (ii) Lamina is perpendicular to one plane and inclined to other (iv) Lamina is inclined to both reference planes. (04 Hours)
5. **Orthographic Projections of Solids:** Practice through various cases (i) Axis is parallel to one plane and perpendicular to other plane (ii) Axis is parallel to one plane and inclined to other plane (iii) Axis is parallel to both HP and VP (iv) Axis is inclined to both HP and VP. (08 Hours)
6. **Section of Solids:** Practice through various cases (i) Parallel to HP (ii) Parallel to VP (iii) Inclined to one plane and perpendicular to other (iv) perpendicular to both HP and VP. (04 Hours)
7. **Development of Surfaces:** Practice through examples using parallel line and radial line methods. (04 Hours)
8. **Isometric Projections:** Illustration through examples for lamina and solids both. (04 Hours)
9. Reading, understanding and interpretation of engineering drawings (Industrial/Commercial/Transportation/Domestic sector) (02 Hours)
10. **Computer Graphics and Design:** Illustration of the contents of theory part through examples using 2D and 3D commands; Generation of basic 3D of some simple industrial part/component, its 3D assembly, generation of associated 2D with inclusion of part bill of material. (10 Hours)

Suggested Readings / Books

1. Agrawal B. and Agrawal C. M., "Engineering Graphics", Tata McGraw Hill Publishing Company Limited, 1st Edition, 2008, New Delhi.
2. Gill P. S., "Engineering Graphics and Drafting", S.K. Kataria and Sons, 1st Edition, 2000, New Delhi.
3. Bhatt N. D. and Panchal V. M., "Elementary Engineering Drawing - Plane and Solid Geometry", Charotar Publishing House, 37th Edition, 1996, Anand.
4. Parthasarathy N. S. and Murali V., "Engineering Drawing", Oxford University Press, 1st Edition, 2016, New Delhi.
5. Bertoline G. R., Wiebe E. N., Miler G. L. L. and Mother J. L., "Technical Graphics Communication", Irwin McGraw Hill, 6th Edition, 2010, New York.
6. George O. and Brian C. B., "Mastering AutoCAD 2018 and AutoCAD LT 2018" by AUTODESK.

Signature
20/7/2018