SECOND SEMESTER 2017-18
INSTRUCTION DIVISION
Course Handout (Part II)

Date: 06/01/2018

In addition to part I (General Handout for all courses appended to the time table) this portion gives further specific details regarding the courses.

Course No	:	BITS F110
Course Title	:	ENGINEERING GRAPHICS
Instructor-in-charge	:	**SHUVENDU NARAYAN PATEL**
Team of Instructors	:	Kamlesh Kumar, Durgesh Vikram, Vishakha Sakhare, Gaurav Kumar, Manpreet Singh, Nitesh Sihag, Rohit Gunerkar, Tanmay Gupta, Vasanth Keshav, Vidhi Vyas, Kiran Raj K, V Sudhir, Harish Puppala, Pankaj Munjal, Rahul Dandautiya, Nitesh Gokhale, Rahul Priyadarshi, Dipendu Bhunia.

1. Course Description:

The course includes fundamentals and techniques of technical drawing and also standard practices of the same so that design ideas can be adequately communicated and produced. It introduces students to theories of projection and the concepts of engineering drawing using the most widely used CAD application software AutoCAD. Basic AutoCAD 2014 commands will also be introduced.

The course will cover: Introduction to AutoCAD basic commands; theory of projections; orthographic projections; isometric projections; projection of points, lines, planes and solids; section of solids; developments of surfaces; interpenetration of solids.

2. Scope and objective of the course:

Computerized drafting is an upcoming technology and provides accurate and easily modifiable graphics entities, easy data storage and retrieval facility and enhances creativity.

Upon successful completion of this course, the student will be able to:

- Read and interpret engineering drawings
- Identify the three principal projection planes
- Draw 2-dimensional orthographic projections from given 3-dimensional views

- Create an isometric drawing using AutoCAD
- Comprehend orthographic and multiview projection
- Apply the concept of cutting planes to create the various types of sectional views
- Become conversant with appropriate use of AutoCAD software for drafting.

3. Text Book: D.M. Kulkarni, A.P. Rastogi and A. K. Sarkar., *Engineering Graphics with AutoCAD*, PHI Learning Private Limited, New Delhi.

4. Reference Book: Dhananjay A. Jolhe, *Engineering Drawing with an Introduction to AutoCAD*, Tata McGraw-Hill Education Private Limited, New Delhi.

5. Course Plan:

Module Number	**Lecture session/Tutorial Session.**	**Reference**	**Learning Outcome**
1. Introduction on Engineering Graphics, Intro to AutoCAD,	L1.1. Introduction on Engineering Graphics. Basic Commands.	Ch-1	Opening of AutoCAD file, Saving, Editing etc., Basic Commands of drawing, editing.
	L 1.2. Further Basic Commands.	Ch-2	
	P1.1. To play around with AutoCAD software and to run the various commands (Non-Evaluative)	Ch-2	
	P1.2. Questions from different Plates of the book will be given. (Non-Evaluative)		
	P1.3. Questions from different Plates of the book will be given. (Non-Evaluative)		
	P1.4 Questions from different Plates of the book will be given. (Non-Evaluative)		
2. Orthographic projections	L2.1 Theory, techniques, first and third angle projections,	Ch-3 and Ch-5	For the given objects(pictorial views) one can draw the

	L2.2. Multi view drawing from given pictorial views.		orthographic projections.
	P2.1. Practice question will be given/discussed in 1st 45 minutes. Evaluative questions will be given and the submission should be done within the next 45 minutes. (Evaluative)	Ch-5	
	P2.2. In a similar way as the above Practical Class. (Evaluative)		
3. Isometric Drawing	L3.1. Theory of isometric drawing	Ch-6	One can learn how to draw the isometric drawing with the given orthographic views.
	L3.2. Construction of isometric from orthographic.		
	P3.1. Practice question will be given/discussed in 1st 45 minutes. Evaluative questions will be given and the submission should be done within the next 45 minutes. (Evaluative)		
	P3.2. In a similar way as the above Practical Class. (Evaluative)		
	P3.3. In a similar way as the above Practical Class. (Evaluative)		

4. Spatial geometry	L4.1 Projection of points; lines, true lengths, inclinations, shortest distance;	Ch-9	One can learn the projection of lines and projection of surfaces.
	L4.2. Projection of Planes	Ch-10	
	P4.1. Practice question will be given/discussed in 1st 45 minutes. Evaluative questions will be given and the submission should be done within the next 45 minutes. [Projection of lines] (Evaluative)	Ch-9	
	P4.2. In a similar way as the above Practical Class. [Projection of lines] (Evaluative)		
	P4.3. In a similar way as the above Practical Class. [Projection of Planes] (Evaluative)	Ch-10	
	P4.4. In a similar way as the above Practical Class. [Projection of Planes] (Evaluative)		
5. Geometrical solids and sections	L5.1. Projections of solids;	Ch-12	How to draw the projection of solids and the sectional views of solids.
	L5.2. Section planes and sectional view of Solids.	Ch-13	

	P5.1. Practice question will be given/discussed in 1st 45 minutes. Evaluative questions will be given and the submission should be done within the next 45 minutes. [Projection of Solids] (Evaluative)	Ch-12	
	P5.2. In a similar way as the above Practical Class. [Projection of Solids] (Evaluative)		
	P5.3. In a similar way as the above Practical Class. [Projection of Section of Solids] (Evaluative)	Ch-13	
	P5.4. In a similar way as the above Practical Class. [Projection of Section of Solids] (Evaluative)		
6. Development of surfaces	L6.1. Radial line method	Ch-14	One can learn how to develop the external surfaces of the given objects.
	L6.2. Parallel line method		
	P6.1. Practice question will be given/discussed in 1st 45 minutes. Evaluative questions will be given and the submission should be done within the next 45 minutes. (Evaluative)	Ch-14	

	P6.2. In a similar way as the above Practical Class. (Evaluative)		
7. Interpenetration of Solids	L7.1. Vertical interpenetration, horizontal interpenetration.	Ch. 15	The projection of interpenetrated solids and intersected solids can be drawn. The profile drawing at entry and exit sides of intersected solid can also be learnt.
	L7.2. Drawing of profile at entry and exit sides of intersected solid.		
	P7.1. Practice question will be given/discussed in 1st 45 minutes. Evaluative questions will be given and the submission should be done within the next 45 minutes. (Evaluative)	Ch. 15	
	P7.2 Practice (Non-Evaluative)		
	P7.3. In a similar way as the above Practical Class. (Evaluative)		

6. Evaluation Scheme:

EC No.	Evaluation component	Duration	Weightage	Date, Time	Remarks

1	Mid – Test (On-line)	60 min	25%	11/3 2:00 - 3:30 PM Throughout the day in different slots for different group of students.	**CB**, On-line (Exam schedule shall be announced in class)
2	Comprehensive (On-line)	75 min	40%	6/5 FN Throughout the day in different slots for different group of students.	**CB**, On-line (Exam schedule shall be announced in class)
3	Assignments	Practical Hours	35%		**OB**, Best (n-3) performances will be counted for aggregate marks.

7. Chamber Consultation Hours: To be announced in class by individual instructors.

8. Notices: Concerned notices will be displayed on LTC notice board and INTRABITS.

9. Make-up policy: There is no makeup for class assignment. Make-up request for Mid Semester / Comprehensive examination must accompany appropriate supporting medical / exigency documents.

10. Mid Semester/Comprehensive Examination will be conducted throughout the day, need not be in the allotted slots as per Time-Table. So the students should be available for the whole day.

Instructor-in-Charge
BITS F110