GUJARAT TECHNOLOGICAL UNIVERSITY

PRODUCTION ENGINEERING

ESTIMATING AND COSTING

SUBJECT CODE: 2162505

B.E. 6th SEMESTER

Type of course: Elective

Prerequisite: Enthusiasm to learn the subject

Rationale: The present course intends to give the exposure of various methods estimating and costing of various product as well as processes of manufacturing. The subject will give the better knowledge of costing as well as estimating for a product whose scale ranges from miniature to extra-large. Since "Estimating and Costing" is an important manufacturing route to fabricate bulk storage and processing equipment's. The subject focuses on knowledge and understanding of various costing techniques.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks						Total Marks
L	T	P	C	Theory Marks			Practical Marks			
				ESE (E)	PA (M)		PA (V)		PA (I)	
					PA	ALA	ESE	OEP		
3	1	0	4	70	20	10	30	0	20	150

Content:

Sr. No.	Subject Contain	Total Hrs.	Wodule Weightage
1	**Introduction to Estimating and Costing:** Estimating-Definition, importance of estimating, aims, functions, organization of estimating department, qualities of estimator, constituents of estimation, profit costing- definition, aims of costing, standard cost, advantage of standard cost. Difference between estimating & costing, procedure for costing, costing methods, cost control- how to control costs, control on indirect material and tools, advantages of efficient costing.	05	16
2	**Elements Of Costs:** Elements of costs- material, labour costs, expenses, direct costs, Material costing- introduction, cost of material, control over material cost, waste control, valuation of material issued from stores, indirect costs, factory expense, administrative expenses, selling & Distribution expenses. Fixed & variable overheads, components of cost- selling price, allocation of on-cost percentage on prime cost, direct labour cost, Labour costing-introduction, objectives of labour costing, wages & incentives, direct material cost, man hour rate, machine hour rate, machine hour rate, combination of man hour & machine hour rate, unit rate method, examples of on costs. Value analysis, simplification, standardization, rationalization.	08	25

3	**Mensuration** Areas of plane figures, areas of irregular figures, volumes & surface areas of solids, Guldinus rules- estimation of surface area & volume of solids of revolution.	03	10
4	**Estimation of Various Manufacturing Processes:** **Estimation in machine shop:** Cutting speed, feed, depth of cut, lathe operations- turning, knurling, facing, drilling, boring, reaming, threading, tapping,. Milling operations- cutting, facing. Grinding operations- surface grinding, cylindrical grinding, shaping & planning, power consumption. **Estimation in Sheet metal shop:** Operations in sheet metal shop, blank layouts, estimation of time, capacity for power process. **Estimation in Forging shop:** Forging- hand forging, machine forging, forging operations, estimation procedure, and estimation of weight, losses & time. **Estimation in Welding shop:** Types of welding joints**,** estimation of welding cost. Estimation of gas cutting cost, estimation of arc welding cost, factors affecting welding cost. **Estimation in pattern making & foundry shops:** Estimation of pattern cost, Estimation of foundry shop. Foundry cost.	10	35
5	**Cost Accounting, Cost Control And Cost Reduction:** Important terms, cost accounting, standard costing, procedure for costing, costing methods, cost control, techniques of cost control. Cost reduction, cost saving areas, variance analysis.	04	14

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
21	**14**	**14**	**14**	**07**	**0**

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

1. Estimation and Costing by Banga & Sharma, Khanna
2. Mechanical Estimating and Costing by B.P.Sinha, TMH
3. Mechanical Costing & Estimation by Sinha, Standard
4. Mechanical Estimating & Costing by Singla, Aggrawal, Kaston Pub.
5. Estimating & Costing by Mukharjee and Goswami
6. Elements of Estimating & Costing(Mechnical) by Saha

Course Outcome:

After learning the course the students should be able to:

1. Determine various types of cost occur after completion of all manufacturing processes.
2. Identify and determine various types of estimating and costing
3. Identification and determination of mensuration techniques
4. Identification and determination of Estimation of Various Manufacturing Processes
5. Determination of various Cost Accounting, Cost Control And Cost Reduction techniques

List of Open Source Software/learning website:

http://nptel.ac.in/

ACTIVE LEARNING ASSIGNMENTS: Preparation of power-point slides, which include videos, animations, pictures, graphics for better understanding theory and practical work – The faculty will allocate chapters/ parts of chapters to groups of students so that the entire syllabus to be covered. The power-point slides should be put up on the web-site of the College/ Institute, along with the names of the students of the group, the name of the faculty, Department and College on the first slide. The best three works should submit to GTU.