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REF: VTU/BGM/PEC-CSE(Cs IoT CBT)/707/2024-25/6058

DATE: 12 FEB 2025

## CIRCULAR

**Subject:** BIP/IM654B-Value Engineering missing syllabus is added under OEC category.

**Reference:** email from BIT Bengaluru dated: 21.02.2025

Approval from the chairperson BoS in IP/IM VTU Belagavi dated 22.02.2025

The syllabus for the Open Elective course **BIP/IM654B-Value Engineering** under the 2022 scheme is now available. The Board of Studies has submitted the syllabus, which is attached to this circular for reference.

All Principals of Engineering Colleges and Chairpersons of University Departments are requested to note the contents of this circular and disseminate the information to concerned stakeholders.

**Enclosure:** BIP/IM654B-Value Engineering Course Syllabus

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**To,**

- The Principals of affiliated/constituent Engineering Colleges under the ambit of the university
- The Chairperson /Program Coordinator of the university department at Kalaburagi, Mysuru, Bengaluru and Belagavi

**Copy to:**

- The Registrar (Evaluation) VTU Belagavi for information and needful
- The Special Officer, QPDS VTU Belagavi for information and needful
- The Director, ITI SMU VTU Belagavi for information and to make arrangements to upload the syllabus on the VTU web portal
- Office Copy

<b>Value Engineering</b>		Semester	<b>VI</b>
Course Code	<b>BIP/IM654B</b>	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	3:0:0:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	03
Examination type (SEE)	<b>Theory</b>		
<b>Course objectives:</b>			
<ul style="list-style-type: none"> <li>• Be able to relate value engineering to costs, and its application to decision making.</li> <li>• Be able to use value engineering as an economic analysis tool.</li> <li>• Be able to apply SMART methodology in group decision environment.</li> </ul>			
<b>Teaching-Learning Process (General Instructions)</b>			
<p>These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.</p> <ul style="list-style-type: none"> <li>• Lectures and discussions</li> <li>• Self study assignments</li> <li>• Case studies and group discussions.</li> </ul>			
<b>Module-1</b>			
<p><b>INTRODUCTION TO VALUE ANALYSIS:</b> Definition of Value, Value Analysis, Value Engineering, Value management, Value Analysis versus Value Engineering, Value Analysis versus Traditional cost reduction techniques, uses, Applications, advantages and limitations of Value analysis. Symptoms to apply value analysis, Coaching of Champion concept.</p> <p><b>TYPE OF VALUES:</b> Reasons for unnecessary cost of product, Peeling cost Onion concept, unsuspected areas responsible for higher cost, Value Analysis Zone, attractive features of value analysis. Meaning of Value, types of value &amp; their effect in cost reduction. Value analysis procedure by simulation. Detailed case studies of simple products</p>			
<b>Module-2</b>			
<p><b>FUNCTIONAL COST AND ITS EVALUATION:</b> Meaning of Function and Functional cost, Rules for functional definition, Types of functions, primary and secondary functions using verb and Noun, Function evaluation process, Methods of function evaluation. Evaluation of function by comparison, Evaluation of Interacting functions, Evaluation of function from available data, matrix technique, MISS technique, Numerical evaluation of functional <b>relationships and case studies.</b></p> <p><b>PROBLEM SETTING &amp; SOLVING SYSTEM:</b> A problem solvable stated is half solved, Steps in problem setting system, Identification, Separation and Grouping of functions. Case studies.</p> <p><b>PROBLEM SETTING &amp; SOLVING SYSTEM:</b> Goods system contains everything the task requires. Various steps in problem solving, case studies.</p>			

### Module-3

**VALUE ENGINEERING JOB PLAN:** Meaning and Importance of Value Engineering Job plan. Phases of job plan proposed by different value engineering experts, Information phase, Analysis phase, Creative phase, Judgment phase, Development planning phase, and case studies. Cost reduction programs, criteria for cost reduction program, Value analysis change proposal.

### Module-4

**VALUE ENGINEERING TECHNIQUES:** Result Accelerators or New Value Engineering Techniques, Listing, Role of techniques in Value Engineering, Details with Case examples for each of the Techniques.

**ADVANCED VALUE ANALYSIS TECHNIQUES:** Functional analysis system technique and case studies, Value analysis of Management practice (VAMP), steps involved in VAMP, application of VAMP to Government, University, College, Hospitals, School Problems etc., (service type problems).

**TOTAL VALUE ENGINEERING:** Concepts, need, Methodology and benefits.

### Module-5

**APPLICATION OF VALUE ANALYSIS:** Application of Value analysis in the field of Accounting, Appearance Design, Cost reduction, Engineering, manufacturing, Management, Purchasing, Quality Control, Sales, marketing, Material Management Etc., Comparison of approach of Value analysis & other management techniques.

#### Course outcome (Course Skill Set)

At the end of the course, the student will be able to :

1. Able to understand the importance of value of a product
2. Find out unnecessary cost/ function involved in the product
3. Conduct value engineering methodology
4. Do value analysis using advanced value engineering techniques
5. Become a certified value engineer with additional course /training

#### Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks(18 out of 50 marks). The student is declared as a pass in the course if he/she secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

#### Continuous Internal Evaluation:

- There are 25 marks for the CIE's Assignment component and 25 for the Internal Assessment Test component.
- Each test shall be conducted for 25 marks. The first test will be administered after 40-50% of the coverage of the syllabus, and the second test will be administered after 85-90% of the coverage of the syllabus. The average of the two tests shall be scaled down to 25 marks
- Any two assignment methods mentioned in the 22OB2.4, if an assignment is project-

based then only one assignment for the course shall be planned. The schedule for assignments shall be planned properly by the course teacher. The teacher should not conduct two assignments at the end of the semester if two assignments are planned. Each assignment shall be conducted for 25 marks. (If two assignments are conducted then the sum of the two assignments shall be scaled down to 25 marks)

- The final CIE marks of the course out of 50 will be the sum of the scale-down marks of tests and assignment/s marks.

**Internal Assessment Test question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.**

**Semester-End Examination:**

- Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the course (**duration 03 hours**).
- The question paper will have ten questions. Each question is set for 20 marks.
- There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.
- The students have to answer 5 full questions (for 100 marks), selecting one full question from each module.
- Marks scored shall be proportionally reduced to 50 marks.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI  
**B.E. in Industrial and Production Engineering**  
**Scheme of Teaching and Examinations 2022**  
 Outcome Based Education (OBE) and Choice Based Credit System (CBCS)  
 (Effective from the academic year 2023-24)

**VI SEMESTER**

Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination			Credits	
					Theory Lecture	Tutorial	Practical/ Drawing	Self -Study	Duration in hours	CIE Marks	SEE Marks		Total Marks
					L	T	P	S					
1	IPCC	BIP601	Work Study and Ergonomics	TD: IPE/IM/ME PSB: IPE/IM/ME	2	2	2		03	50	50	100	4
2	PCC	BIP602	Operations Research		3	2	0		03	50	50	100	4
3	PEC	BIP613x	Professional Elective Course		2	2	0		03	50	50	100	3
4	OEC	BIP654x	Open Elective Course		3	0	0		03	50	50	100	3
5	PROJ	BIP685	Project Phase - I		0	0	4		03	100	--	100	2
6	PCCL	BIPL606	Software Applications Lab		0	0	2		03	50	50	100	1
7	AEC/SDC	BIP657x	Ability Enhancement Course/ Skill Development Course V		If the course is offered as a Theory				01	50	50	100	1
				1	0	0							
				If course is offered as a practical									
8	MC	BNSK658	National Service Scheme (NSS)	NSS coordinator									
		BPEK658	Physical Education (PE) (Sports and Athletics)	Physical Education Director	0	0	2		---	100	---	100	0
		BYOK658	Yoga	Yoga Teacher									
9	MC	BIKS609	Indian Knowledge System		1	0	0		01	100	0	100	pp
<b>Total</b>									<b>600</b>	<b>300</b>	<b>900</b>	<b>18</b>	
<b>Professional Elective Course</b>													
BIP613A	Hydraulics and Pneumatics			BIP613C	Finite Element Methods								
BIP 613B	Simulation and Modelling of Manufacturing Systems			BIP613D	Human Resource Management								
<b>Open Elective Course</b>													
BIP654A	Total Quality Management			BIP654C	Management Information Systems								
BIP654B	Value Engineering			BIP654D	Industrial Hygiene & Occupational Safety and Health								