



ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ
ವಿಟಿಯ ಅಧಿನಿಯಮ ೧೯೯೪ರ ಅಡಿಯಲ್ಲಿ ಕರ್ನಾಟಕ ಸರ್ಕಾರದಿಂದ ಸ್ಥಾಪಿತವಾದ
ರಾಜ್ಯವಿಶ್ವವಿದ್ಯಾಲಯ

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

State University of Government of Karnataka Established as per the VTU Act, 1994 "JnanaSangama" Belagavi-
590018, Karnataka, India



Prof. B. E. Rangaswamy, Ph.D

REGISTRAR

Phone: (0831) 2498100

Fax: (0831) 2405467

REF: VTU/BGM/BoS/21MT742/638/2024-25/3312

DATE: 9 OCT 2024

CIRCULAR

Subject: 21MT742- Product Life Cycle Management, missing syllabus regarding...

Reference: e-Mail from Chairperson BoS Mechanical Engineering VTU Belagavi dated 02.10.2024

The course "**21MT742 - Product Life Cycle Management**" was missing in the uploaded syllabus for the 2021 scheme of the Mechatronics programs. The syllabus, submitted by the Mechanical Engineering Board of Studies, is attached to this circular for the reference and use of all stakeholders.

Principals are requested to inform the relevant faculty and students about these updates.

Encl: Scheme and Syllabus copy

Sd/-

REGISTRAR

To,

All the Principals of Engineering Colleges are under the ambit of the University where Mechatronics program is being offered

Copy to

- The Hon'ble Vice-Chancellor through the secretary to VC for information
- The Registrar (Evaluation) for information and needful
- The Director, ITI,SMU,VTU Belagavi for information and needful also request to upload the circular on the University website
- The Special Officer QPDS section of VTU Belagavi for information and needful
- Office copy

Har 09/10/24
REGISTRAR
[Signature]

VII Semester

PRODUCT LIFE CYCLE MANAGEMENT

Course Code	21MT742	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	3.0.0.0	SEE Marks	50
Total Hours of Pedagogy	45 hours	Total Marks	100
Credits	03	Exam Hours	03

Course objectives:

This course enables students to

1. Familiarise with various strategies of PLM
2. Understand the concept of product design and simulation.
3. Develop New product development product structure and supporting systems
4. Interpret the technology forecasting and product innovation and development in business processes.
5. Understand product building and Product Configuration

Module-1

INTRODUCTION TO PLM AND PDM: Introduction to PLM, Need for PLM, opportunities and benefits of PLM, different views of PLM, components of PLM, phases of PLM, PLM, feasibility study. PLM Strategies, strategy elements, its identification, selection and implementation. Product Data Management, implementation of PDM systems

Module-2

PRODUCT DESIGN: Engineering design, organisation and decomposition in product design, product design process, methodical evolution in product design, concurrent engineering, design for 'X' and design central development model. Strategies for recovery at end of life, recycling, human factors in product design, Modelling and simulation in product

Module-3

PRODUCT DEVELOPMENT: New Product Development, Structuring new product development, building decision support system, Estimating market opportunities for new product, new product financial control, implementing new product development, market entry decision, launching and tracking new product program. Concept of redesign of product.

Module-4

TECHNOLOGY FORECASTING: Technological change, methods of technology forecasting, relevance trees, morphological methods, flow diagram and combining forecast of technologies Integration of technological product innovation and product development in business processes within enterprises, methods and tools in the innovation process according to the situation, methods and tools in the innovation process according to the situation.

Module-5

PRODUCT BUILDING AND STRUCTURES: Virtual product development tools for components, machines, and manufacturing plants; 3D CAD systems, digital mock-up, model building, model analysis, production (process) planning, and product data technology, Product structures: Variant management, product configuration, material master data, product description data, Data models, Life cycles of individual items, status of items.

Course Outcomes:
Student will be able to

1. Explain the various strategies of PLM and Product Data Management
2. Describe decomposition of product design and model simulation
3. Apply the concept of New Product Development and its structuring
4. Analyse the technological forecasting and the tools in the innovation
5. Apply the virtual product development and model analysis

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). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50)in the semester-end examination(SEE), and 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:

Three Unit Tests each of **20 Marks (duration 01 hour)**

1. First test at the end of 5th week of the semester
2. Second test at the end of the 10th week of the semester
3. Third test at the end of the 15th week of the semester

Two assignments each of **10 Marks**

4. First assignment at the end of 4th week of the semester
5. Second assignment at the end of 9th week of the semester

Group discussion/Seminar/quiz any one of three suitably planned to attain the COs and POs for **20 Marks (duration 01 hours)**

6. At the end of the 13th week of the semester

The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be **scaled down to 50 marks**

(to have less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course).

CIE methods /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 subject (**duration 03 hours**)

1. The question paper will have ten questions. Each question is set for 20 marks. Marks scored shall be proportionally reduced to 50 marks
2. 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, selecting one full question from each module

Suggested Learning Resources:

Books

- Stark, John. *Product Lifecycle Management: Paradigm for 21st Century Product Realisation*, Springer-Verlag,2004, ISBN 1852338105
- Fabio Giudice, Guido La Rosa Product Design for the environment – A life cycle approach, Taylor & Francis 2006.
- Saaksvuori Antti / ImmonenAnselmie, product Life Cycle Management Springer, Dreamtech, 3-540-25731-4
- Product Lifecycle Management, Michael Grieves, Tata McGraw Hill.

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
B.E. in Mechatronics Engineering
Scheme of Teaching and Examinations 2021
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2021 - 22)

Swappable VII and VIII SEMESTER

VII 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	PCC 21MT71	Thermal Engineering	TD: MT PSB: MT	3	0	0		3	50	50	100	3
2	PCC 21MT72	Communication systems	TD: MT PSB: MT	2	0	0		3	50	50	100	2
3	PEC 21MT73X	Professional elective Course-II	TD: MT PSB: MT	3	0	0		3	50	50	100	3
4	PEC 21MT74X	Professional elective Course-III	TD: MT PSB: MT	3	0	0		3	50	50	100	3
5	OEC 21MT75X	Open elective Course-II	Concerned Department	3	0	0		3	50	50	100	3
6	Project 21MTP76	Project work		Two contact hours /week for interaction between the faculty and students.				3	100	100	200	10
Total								350	350	700	24	

VIII SEMESTER

Sl. No	Course and Course Code	Course Title	Teaching Department	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	Seminar 21MT81	Technical Seminar		One contact hour /week for interaction between the faculty and students.				--	100	--	100	01	
2	INT 21INT82	Research Internship/ Industry Internship		Two contact hours /week for interaction between the faculty and students.				03 (Batch wise)	100	100	200	15	
3	NCMC	21N S83	National Service Scheme (NSS)	NSS	Completed during the intervening period of III semester to VIII semester.				--	50	50	100	0
		21P E83	Physical Education (PE) (Sports and Athletics)	PE									
		21Y O83	Yoga	Yoga									
Total								250	150	400	16		

Professional Elective - II

21MT731	Digital Image Processing and Robot Vision	21MT734	Control Systems and Engineering
21MT732	Digital Controllers	21MT735	Additive Manufacturing
21MT733	Artificial Intelligence for Mechatronics		

Professional Elective - III

21MT741	VLSI (202)	21MT744	Computer Integrated Manufacturing
21MT742	Product Life Cycle Management	21MT745	Operations Research
21MT743	Mechatronics System Design		