

SVERI's
College of Engineering, Pandharpur
Action Taken Report of the
Institution on Feedback Report



Ref.: COEPR/2022-2023/87

Date:- 30/04/2022

To,
The Chairman,
BOS in Mechanical Engineering,
Punyashlok Ahilyadevi Holkar Solapur University,
Solapur.

Subject: Suggestions to be incorporated in the syllabus of T.Y. B. Tech. (Mechanical Engineering) w.e.f. 2022-2023.

Respected sir,

Throughout the year, we collect suggestions from various stakeholders regarding the curriculum. We have also received number of suggestions for curriculum improvement from industrial experts. Accordingly suggestions were discussed in the department meeting.

Our Mechanical Engineering Department has recommended the following suggestions for incorporation in Course Curriculum of T. Y. B. Tech. (Mechanical Engineering) w.e.f. 2022-2023 to enrich students' learning experience and making them more employable.

Name of Program: Mechanical Engineering.

Suggestions for the Modifications in the Curriculum:

1. Machine Design -I subject can be replaced by Design of Machine Elements.
2. Industrial Engineering can be as a separate subject for Third Year Level at SEM-I.
3. Operational Research part can be eliminated from the Third Year course.
4. Metrology practical should be at Third Year SEM-I instead of Third Year SEM-II.
5. Practical Oral for Subject CAD-CAM-CAE Third Year SEM-I can be removed.
6. ICA Marks weightage of Mini Project can be increased in University Curriculum.
7. Machine Design -II subject can be replaced by Transmission System Design.
8. Java Programming Language should be added as an Advanced Programming Concept-II.
9. Mechanical Vibration subject can be included in the list of Professional Elective-IV.
10. Self-Learning Technical subject can be removed.
11. Add practical related to manufacturing of all types of sheet metal.
12. Add on courses can be included in the curriculum.
13. Include any kind of practical exposure to industry practices and standards of work.
14. Hybrid advanced machining and micro machining processes can be included in the Non-Conventional Machining Subject.
15. Need to add Industrial visit for Heat Transfer subject to get industrial exposure.

Punyashlok Ahilyadevi Holkar
Solapur University, Solapur
02 MAY 2022
Inward No.1357.....



16. Include Advection topic in the Heat Transfer subject.
17. Some software related to machine design need to be added in the curriculum.
18. Include some contents related to latest trends across the global for each course.
19. Topics related to cross cutting issues such as gender, professional ethics, human values, environment and sustainability can be added into the curriculum.
20. Add one subject related to Design of Electrical Vehicles in first semester of Third Year & one software course related to Design of Electrical Vehicles in second semester of Third Year.
21. Machine Learning & Artificial Intelligence should have more focus in the curriculum.
22. Experiment related to case depth of case harden material should be added in metallurgy subject.
23. Syllabus related to new materials which are useful in manufacturing of batteries and solar panels should be added.
24. Practical based on Composite materials/Nano materials/Powder metallurgy topic should be added.
25. Include the Heat Transfer subject (presently in sixth semester) in earlier semester as it is a prerequisite for many other subjects which are even taught in this and earlier semesters.
26. For Industrial Hydraulics and Pneumatics subject circuit design softwares (if any) may be included.
27. In CAD-CAM-CAE, topics related to CAE should be increased, basic fundamentals of CAD and CAM should be removed.
28. Industrial exposure should be given at third year level by adding industrial visit to more subjects.
29. In ICA of design related subject should contain Mini Project/Design Report with part and assembly drawing using any drafting software.

You are requested to kindly put suggestions to the notice of Board of Studies, Mechanical Engineering.

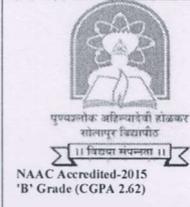
We will be happy to interact for clarification, if any.

Thanking you.

Regards,


(Dr. B. P. Ronge)
PRINCIPAL





पुण्यश्लोक अहिल्यादेवी होळकर सोलापूर विद्यापीठ, सोलापूर
Punyashlok Ahilyadevi Holkar Solapur University, Solapur
केगाव, सोलापूर - ४१३ २५५, महाराष्ट्र (भारत)

दुरध्वनी क्र. ०२१७-२७४४७७९ / ७२/ ७८ (११ लाईन्स), फॅक्स : ०२१७-२३५१३००,
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अभ्यासमंडळे विभाग

जा. क्र.पुअहोसोविसो/अमंवि/२०२०-२१/ ३५८५

दिनांक: 24 MAY 2022

अभ्यासमंडळ बैठकीची सूचना

तंत्रज्ञान शाखेतर्गत येणाऱ्या Mechanical Engineering या स्थायी अभ्यासमंडळाची बैठक सोमवार, दि. ३०/०५/२०२२ रोजी दु. ०३:०० वाजता विद्यापीठ कार्यालयात आयोजित करण्यात आली आहे. तरी आपण या बैठकीस उपस्थित रहावे, ही विनंती.

- बैठकीपुढील विषय -

- मागील दि. १८/०४/२०२२ रोजीच्या बैठकीचे इतिवृत्त वाचून कायम करणे.
- शैक्षणिक वर्ष २०२२-२३ पासून निवड आधारित श्रेयांक प्रणालीनुसार (CBCS) सुधारित करण्यात येणाऱ्या T.Y. B.Tech व T.Y. B.Tech with Honors चा आराखडा व पाठ्यक्रम अभ्यासक्रम स्विकारून विद्याशाखेकडे शिफारस करण्याची बाब विचारार्थ.
- तंत्रज्ञान विद्याशाखेकडील पदव्युत्तर अभ्यासक्रमासाठी (M. Tech.) विद्यापीठाकडून बनविण्यात आलेला स्वतंत्र अध्यादेश (Ordinance) स्विकारून विद्याशाखेकडे शिफारस करण्याची बाब विचारार्थ.
- परीक्षेसाठी प्राश्निक, परीक्षक व नियामक यांच्या नेमणूकी करिता महाराष्ट्र सार्वजनिक अधिनियम, २०१६ कलम ४१(च) नुसार अध्यापकांच्या नावाची यादी तयार करून परीक्षा व मुल्यमापन मंडळाकडे शिफारस करण्याची बाब विचारार्थ.
- S.Y. B.Tech या जुन्या अभ्यासक्रमासाठी (शै. वर्ष २०१९-२०२०) नवीन अभ्यासक्रमातील (शै. वर्ष २०२२-२३) समकक्ष (Equivalence) विषय तयार करण्याची बाब विचारार्थ.
- दि. ३०/०४/२०२२ रोजीचे कॉलेज ऑफ इंजिनिअरिंग, पंढरपूर यांचे पत्र.
- मा. अध्यक्ष यांच्या पूर्वपरवानगीने येणा-या आयत्या वेळेचे विषय.

प्रति,

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आपला विश्वासू,

(वि. सं. पाटील)

कक्षअधिकारी



Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Faculty of Science and Technology

Credit System structure of T.Y. B. Tech. Mechanical Engineering W.E.F. 2022-2023 [Semester V]

Semester V: Theory Courses

Course code	Name of Theory Course	Hrs./week				Credits	Examination Scheme			
		L	T	P	D		ISE	ESE	ICA	Total
ME 311	Design of Machine Elements	3	-	-	-	3	30	70	-	100
ME 312	CAD-CAM-CAE	3	-	-	-	3	30	70	-	100
ME 313	Metallurgy	3	-	-	-	3	30	70	-	100
ME 314	Industrial Engineering	3	-	-	-	3	30	70	-	100
ME 315 P	Professional Elective -III	3	-	-	-	3	30	70	-	100
ME 316	Advanced Programming Concepts – I(Python)	1	-	-	-	1				
SLH31	Self Learning -HSS	-	-	-	-	#2	-	50	-	50
	Sub Total	16	-	-	-	16	150	400	-	550

Semester V: Laboratory / Tutorial Courses

Course code	Name of Laboratory /Tutorial Course	Hrs./week				Credits	Examination Scheme				
		L	T	P	D		ISE	ESE		ICA	Total
								POE	OE		
ME 311	Design of Machine Elements	-	-	2	-	1	-	-	-	25	25
ME 312	CAD CAM CAE	-	-	2	-	1	-	-	-	25	25
ME 313	Metallurgy	-	-	2	-	1	-	-	25	25	50
ME 315 P	Professional Elective -III	-	-	2	-	1	-	-	-	25	25
ME 316	Advanced Programming Concepts - I(Python)	-	-	2	-	1	-	-	-	25	25
Me 317	Workshop Practice - II	-	-	2	-	1	-	-	-	50	50
ME 318	Metrology	-	-	2	-	1	-	25	-	25	50
	Sub Total	-	-	14	-	07	-	50		200	250
	Grand Total	16	-	14	-	23	150	450		200	800

Note:# Indicates credits over and above

Abbreviations: L- Lectures, P –Practical, T- Tutorial, D- Drawing, ISE- In Semester Examination, ESE - End Semester Examination (University Examination for Theory & / POE & / Oral), ICA- Internal Continuous Assessment.

Professional Elective –III: A. Gas Turbines, B. Tool Engineering, C. Industrial Hydraulics Pneumatics D. Mechanical Vibrations



Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Faculty of Science and Technology

Credit System structure of T.Y. B. Tech. Mechanical Engineering W.E.F. 2022-2023 [Semester VI]

Semester VI : Theory Courses

Course code	Name of Theory Course	Hrs./week				Credits	Examination Scheme			
		L	T	P	D		ISE	ESE	ICA	Total
ME 321	Transmission System Design	3	-	-	-	3	30	70	-	100
ME 322	Instrumentation and Control Engineering	3	-	-	-	3	30	70	-	100
ME 323	Heat Transfer	3	-	-	-	3	30	70	-	100
ME 324	Industrial & Quality Management	3	-	-	-	3	30	70	-	100
ME 325 P	Professional Elective - IV	3	-	-	-	3	30	70	-	100
ME 327	Advanced Programming Concepts – II(Java)	1	-	-	-	1	-	-	-	-
	Sub Total	16	-	-	-	16	150	350	-	500

Semester VI : Laboratory / Tutorial Courses

Course code	Name of Laboratory / Tutorial Course	Hrs./week				Credits	Examination Scheme				
		L	T	P	D		ISE	ESE		ICA	Total
								POE	OE		
ME 321	Transmission System Design	-	-	2	-	1	-	-	25	25	50
ME 322	Instrumentation and Control Engineering	-	-	2	-	1	-	-	-	25	25
ME 323	Heat Transfer	-	-	2	-	1	-	25	-	25	50
ME 324	Industrial & Quality Management	-	1	-	-	1	-	-	-	25	25
ME 325 P	Professional Elective - IV	-	-	2	-	1	-	-	-	25	25
ME 326	Workshop Practice - III	-	-	2	-	1	-	-	-	50	50
ME 327	Advanced Programming Concepts – II (Java)	-	-	2	-	1	-	-	-	25	25
ME 328	Mini Project	-	1	-	-	1	-	-	-	50	50
	Sub Total		02	12	-	08	-	50	250	300	
	Grand Total	16	02	12	-	24	150	400	250	800	

Abbreviations: L- Lectures, P –Practical, T- Tutorial, D- Drawing, ISE- in Semester Examination, ESE - End Semester Examination (University Examination for Theory & / POE & / Oral), ICA- Internal Continuous Assessment.

Professional Elective – IV: A. Project Management, B. Industrial Product Design C. Plastic Engineering, D. Railway Transportation System.

• **Note –**

1. Batch size for the practical /tutorial shall be of 15 students. On forming the batches, if the strength of remaining students exceeds 07, then a new batch shall be formed.
2. Industrial Training (evaluated at Final Year Sem.-I) of minimum 30 days shall be completed in any vacation after S.Y. Sem.-IV but before Final Year Sem.VII & the report shall be submitted and evaluated in Final Year Sem.-VII.
3. Students shall select one Self Learning Module at T.Y. Sem. V from Humanities and Social Sciences.
4. Curriculum for Humanities and Social Sciences Self Learning Modules is common for all under graduate programmes of faculty of Engineering and Technology.

5. For T. Y. Sem. V

A. Student can select a Self Learning Course from PAH Solapur University, Solapur HSS Course List and appear for its examination as and when conducted by PAH Solapur University, Solapur

OR

B. Student can enroll for National Programme on Technology Enhanced Learning (NPTEL) course, complete its assignments and Appear for certificate examination as and when conducted by NPTEL.

For more details about Self Learning Course (HSS), please refer to separate rule document available from PAH Solapur University, Solapur (http://sus.ac.in/uploads/engineering/Eng%20Revised%20Semester%20Pattern/Self%20Learning-%20H.S.S.%20courses%20All%20Engg.Branches_2014-15.pdf). More details about NPTEL are available at <http://nptel.ac.in>

6. ICA assessment shall be a continuous process based on student's attendance and performance in class tests, assignments, homework, seminars, quizzes, case studies and journals, as applicable.



Punyashlok Ahilyadevi Holkar Solapur University, Solapur
Third Year B.Tech. (Mechanical Engineering)

Semester-V

ME 311: Design of Machine Elements

Teaching Scheme

Lectures: 03 Hours/week, 03 Credits

Practical: 02 Hours/week, 01 Credit

Examination Scheme

ESE: 70 Marks

ISE: 30 Marks

ICA: 25 Marks

Course Introduction:

This course seeks to introduce machine design and discusses various procedures, requirements, design methods. It introduces engineering materials and describes the different kinds of irons, steels and alloys used in engineering design with IS Codes. A further content explains in detail the manufacturing considerations in design. Components design procedures for design against static load and fluctuating load is also covered in content of the course. The features and varieties of threaded joints, and welded joints are explained with design considerations. Similarly design of shafts and keys with IS codes, design of couplings; springs and selection of belt drives from manufacturers catalogue is covered in content of the course.

Course Prerequisite:

Student shall have knowledge of function of machine elements such as keys, couplings, pulleys, levers, joints etc. A sound background of analysis of mechanical elements is essential for successful completion of this course.

Course Objectives:

The course aims to :

1. To design machine elements such as springs, shafts, joints, levers, etc.
2. To design mechanical component subjected to fluctuating loads.
3. To implement standardization in design of machine elements.
4. To develop proper approach and logics while designing of different mechanical parts / components.

Course Outcomes:

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

1. Design the machine elements subjected to axial loads
2. Design mechanical component subjected to fluctuating loads.
3. Implement standardization in design of machine elements.
4. Design the machine elements subjected to twisting and bending moments.
5. Develop practical and theoretical approaches to different mechanical component designs.
6. Analyse and design mechanical components on the basis of different design aspects.

Section I

Unit-1: Fundamentals of machine design and Design against static load No. of lectures-09

Procedure of machine design, Procedure of design of machine element, Types of loads, Factor of safety- its selection and significance, Theories of elastic failure and their applications, selection of preferred sizes, (No Numerical treatment) Socket and Spigot Cotter joint, knuckle joint, levers (lever loaded safety valve and right-angled bell crank lever) (Numerical treatment).

Unit-2: Design against fluctuating loads No. of lectures-06

Stress concentration causes and remedies, fatigue failure, endurance limit, notch sensitivity, Goodman and Soderberg diagram, Modified Goodman diagram, design for finite and infinite life under reversed and fluctuating stresses. (Numerical Treatment).

Unit-3: Selection of Belt No. of lectures-05

Selection of flat and V belt from standard manufacturers' catalogue / Design data book. (Numerical Treatment).

Section II

Unit-4: Manufacturing considerations in Design and Design of shafts, keys and couplings No. of lectures-09

Design considerations for casting, Design considerations for forging, Design considerations for machined parts, Design for manufacture and assembly.

Materials for shaft, Design of solid and hollow shaft on strength basis (maximum principal stress theory and Maximum shear stress theory) and on basis of torsional rigidity, ASME code for shaft design. Splined shaft (Introductory treatment).

Design of square and flat keys.

Types of couplings- Muff, Rigid flange. (Numerical treatment excluding Splined shaft).

Unit-5: Design of springs No. of lectures-05

Types of springs and their applications, terminology of helical spring, styles of end, spring materials, stress and deflection in helical spring, series and parallel springs, introduction to leaf spring. (Numerical treatment excluding leaf spring).

Unit-6: Design of Joints No. of lectures-06

Bolted joint- Simple analysis, eccentrically loaded bolted joints in shear, eccentric load parallel to axis of bolt, eccentric load perpendicular to axis of bolt (Numerical limited to static loading).

Welded Joints- Strength of butt welds, transverse fillet welds, axially loaded unsymmetrical lap joint, eccentrically loaded welded joint in shear (Numerical treatment).

Internal Continuous Assessment (ICA): Following eight assignments to be completed :

Part A: Assignment based on the following.

1. Selection of materials for engineering applications as per IS codes, composition and properties.
2. Selection of belts.
3. Design of helical springs subjected to static load.
4. Design of bolted and welded joints.
5. Design of shaft using ASME codes.
6. Manufacturing Considerations in Design.

Part B

7. Design and drawing of Turn buckle.
8. Design and drawing of rocker arm.

Note- Students are required to draw assembly and details of above Mechanical Components on drawing sheet (Sr. No. 7&8) (Suitable software may also be used)

Text Books:

1. “Design of Machine Elements”, V.B. Bhandari, 4th edition, McGraw Hill.
2. “Machine Design Data Book”, V.B. Bhandari, 2nd edition.

Reference Books

1. Design of Machine Element by J.F. Shigley, McGraw Hill Publications.
2. Design of Machine Element by M.F. Spotts, Pearson Education Publication.
3. Design Data: Data Book of Engineers by PSG College - Kalaikathir Achchagam - Coimbatore.





Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Third Year B.Tech. (Mechanical Engineering)

Semester-V

ME 312 : CAD-CAM-CAE

Teaching Scheme

Lectures: 03 Hours/week, 03 Credits

Practical : 02Hours/week, 01 Credit

Examination Scheme

ESE : 70 Marks

ISE : 30 Marks

ICA : 25 Marks

Course Introduction:

Now-a-days industries cannot survive worldwide competition unless they introduce new products with better quality, at lower cost, and with shorter lead time. Accordingly, they have tried to use the computer's huge memory capacity, fast processing speed, and user-friendly interactive graphics capabilities to automate and bind together thus reducing the time and cost of product development and production. Computer-Aided Design (CAD), Computer-Aided Manufacturing (CAM), and computer-aided engineering (CAE) are the technologies used for this purpose during the development of mechanical product with best quality and lowest cost. Students must have knowledge of CAD, CAM and CAE. Therefore, this course contains syllabus related to CAD, CAM and CAE activities.

Course Objectives:

The course aims to :

1. Create an awareness regarding Geometric Modeling activities in Industries.
2. Create an awareness regarding CAM activities in Manufacturing Industries.
3. Develop part programming capabilities for CNC machines.
4. Empower students to learn advanced tools in Automation.
5. Utilize modern tools for design, analysis and manufacturing activities.

Course Outcomes:

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

1. Solve CAD related problems from industries.
2. Elaborate the concept of geometric modelling
3. Create solid model in CAD/CAM/CAE environment according to predefined parameters
4. Analyze Geometric transformations and FEA applications to mechanical component.
5. Solve CAM related problems of manufacturing industries.
6. Develop CNC part programming to operate CNC milling & turning machine to manufacture a Mechanical part.

Section I

Unit-1: Introduction to CAD / CAM/CAE

No. of lectures- 04

Product Cycle and CAD / CAM/CAE, Advantages of CAD / CAM/CAE, Hardware used for CAD/CAM/CAE system, List of input/output devices, Functions of Graphics Software, Selection of CAD / CAM/ CAE Software.

Unit-2: Computer Graphics and Geometric Modeling

No. of lectures- 08

Geometric Transformations, Homogeneous Coordinates, Windowing and Viewing Transformations, Coordinate Transformations, Standardization in Graphics Software, CAD / CAM Data Exchange. Introduction to Geometric Modeling and its types, Parametric representation of basic entities like line and circle, Introduction to basic curves - Bezier, B-Spline, NURBS, concept of CSG and Boolean operations, Feature based modeling.

Unit-3: Finite element method and Automation

No. of lectures- 08

Finite element method: Definition, Types of analysis, terms used in FEM, types of nodes and elements, General Steps of the FEM, Structural and thermal analysis of 1-D bar elements, Introduction to latest FEA software.

Automation: Concept & Definition of Automation, Types, Advantages and Limitations of Automation, Automation and CAD/CAM, CIM and CAD / CAM, Group Technology, part family, Classification and Codification System, Merits and Demerits of Group Technology, CAPP, Retrieval and Generative type of CAPP, MRP, concept of ERP, concept of Rapid Prototyping.

Section II

Unit-4: Fundamentals of NC system

No. of lectures- 06

Evolution of NC and Retrofitting, Elements of NC Manufacturing System, concept of work zero and machine zero, Types of NC systems, Structure, Drives and other devices, Steps in NC Manufacturing, Advantages and Disadvantages of NC Technology, Flexible Manufacturing System (FMS), Elements of FMS, Applications of FMS, Merits and Demerits in FMS.

Unit-5: CNC- DNC Technology and Tooling

No. of lectures- 06

Classification of CNC machine tools, CNC controllers, Features and Advantages of CNC, Adaptive Control, Advantages of Adaptive Control, Direct Numerical Control, Types of Direct Numerical Control, Advantages and Disadvantages of Direct Numerical Control, Tool holders, Adapters, Tool magazines, Automatic tool changers, Pallets, Tool setting, Modular tooling.

Unit-6: Manual Part Programming

No. of lectures- 08

Principles of an NC Program, Word Address Format (WAF), Machining Formulas, Tool Length and Cutter Diameter Compensation, Canned Cycles for Lathe, Milling and Drilling, Introductory treatment of Subprogram, Subroutines, DO Loop, Macros.

Internal Continuous Assessment (ICA):

List of Experiments/Assignments/Case Studies, etc.

1. Assignment on Modeling & Drafting of any two mechanical components.
2. Assignment on Modeling of simple Assembly of around 3-5 machine components.
3. Assignment on Elements used in FEM analysis
4. Assignment on Rapid Prototyping
5. Assignment on FEA based structural analysis of simple mechanical component.
6. Assignment on FEA based thermal analysis of simple mechanical component.
7. Part programming of one job using CAM software or Programming and manufacturing of one job on CNC lathe or CNC Milling machine.
8. Assignment based on Industrial visit and its report based on CNC/FMS/Automation.

Text Books:

1. Introduction to CAD/CAM, Rao P.N., -Tata McGraw Hill Publishing Co.
2. Automation, Production Systems and Computer Integrated Manufacturing, Grover M.P.- Prentice Hall of India
3. Numerical Control -Computer Aided Manufacturing, Kundra, Rao, Tiwari-TMHillPub.Co.
4. CAD/CAM/CAE, Chougule N.K.- SCITECH Publications (I) Pvt. Ltd.
5. CAD/CAM/CIM, P. Radhakrishanan.

Reference Books

1. Introduction to CAD/CAM, Rao P.N., -Tata McGraw Hill Publishing Co.
2. Automation, Production Systems and Computer Integrated Manufacturing, Grover M.P.- Prentice Hall of India
3. Numerical Control -Computer Aided Manufacturing, Kundra, Rao, Tiwari- TM Hill Pub. Co.
4. CAD/CAM/CAE, Chougule N.K.- SCITECH Publications (I) Pvt. Ltd.



Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Third Year B.TECH. (Mechanical Engineering)

Semester-V

ME 314 : Industrial Engineering

Teaching Scheme

Lectures: 03Hours/week, 03 Credits

Examination Scheme

ESE: 70Marks

ISE: 30Marks

Course Introduction:

Industrial Engineering is concerned with the design, improvement and installation of integrated system of people, material, information, equipment and energy. It draws upon specialized knowledge and skill in the mathematical, physical and social science together with the principles and methods of engineering analysis and design, to specify, predict and evaluate the results to be obtained from such systems. This course includes, Introduction of basic concepts of IE and its applications to improve productivity for manufacturing and service sector. To understand concept of method study, work measurement, Job evaluation and merit rating for improving overall productivity. To acquire knowledge about plant layout, facility location, safety and ergonomic consideration for improving productivity.

Course Objectives:

The course aims to:

1. To apply concept of productivity and illustrate different methods to improve it.
2. To acquire about knowledge of charts and apply for method study
3. To understand concepts of ergonomics and industrial safety
4. To establish standard time for work.
5. To select facility location and design plant layout.
6. To acquire knowledge of job evaluation and merit rating

Course Outcomes:

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

1. Analyze & measure productivity.
2. Perform method study
3. Apply knowledge of ergonomics and industrial safety
4. Perform work measurement'
5. Select facility location and design plant layout
6. Apply knowledge of job evaluation and merit rating

Section I

Unit-1 : Introduction to Industrial Engineering

No. of lectures- 06

Definitions and meaning of I.E., contribution by F.W. Taylor, Gilbreth, objectives of I.E.

Productivity - Factors affecting productivity and ways to improve productivity.

Work Study – Definitions, objectives, Importance of work study procedure, Relation of work study with – work Simplification, Human Relation. (Numerical treatment)

Unit-2: Method Study

No. of lectures-08

Definition, objective, Scope of method study, Basic procedure symbols and recording of facts, Charting conventions, Charts – Operation process chart, Flow process chart, Multiple activity chart, Two handed process chart, Diagrams – Flow and string diagram, travel chart Templates and models, Micro motion study. Therbligs simo chart, Critical examination and selection, Implementation method

Unit-3: Ergonomics and Industrial Safety

No. of lectures-06

Definition, Man Machine system, Types of display, types of control, manual material handling, Anthropometry, Design of work place and working conditions, ILO Norms.

Definition of accident, Cause of accident, Prevention of accident, safety measures factor acts, minimum wages act, Employers state Insurance act.

Section II

Unit-4: Work Measurements

No. of lectures- 07

Definition, objective and techniques of work measurement, time study, stop watch method, performance rating, allowance, relaxation interference contingency, policy, calculation of standard time, work sampling its need and procedure, predetermined motion time study(PMTS). (Numerical treatment)

Unit-5: Facility Locations and Plant Layout

No. of lectures-07

a) Factors affecting site selection:

- Intangible factors for facility location, tangible factor for facility location, advantages and disadvantages of facility location in urban and rural areas.

b) Plant Layout:

- Characterization of an efficient layout objectives of plant layout, principles of plant layout, procedure in planning layout, types of plant, layout product/line layout, process/functional layout, fixed position/static layout, cellular/Group Technology layout, selection of material handling equipment.

Unit-6: Job Evaluations and Merit Rating

No. of lectures-06

Job evaluation: objectives, advantages and procedure, job analysis, job description, job specification, methods of evolution. Merit rating: Objectives and Method of Merit rating.

Text Books:

1. Industrial engineering and Production management by Martand Telsang. (S. Chand)
2. Engineering management by A. K. Gupta (S. Chand)
3. Industrial Engineering and Management by O. P. Khanna.

Reference Books

1. Introduction to work study by ILO. (Universal Publication)
2. Work Study by O. P. Khanna. (Dhanpat Rai and Sons)





Punyashlok Ahilyadevi Holkar Solapur University, Solapur
Third Year B.TECH. (Mechanical Engineering)

Semester-V

Professional Elective - III

ME315 (D) : Mechanical Vibrations

Teaching Scheme

Lectures:03Hours/week, 03 Credits

Practical :02Hours/week, 01Credit

Examination Scheme

ESE: 70Marks

ISE: 30Marks

ICA: 25Marks

Course Introduction:

Vibration is a common phenomenon existing in a mechanical system. Mechanical structures and systems are susceptible to vibrations, i.e. periodic changes in the physical state. Vibrations can both be a hindrance and a benefit to machines. In this course, we will learn how one can predict vibrations and interpret the measured vibrations using analytical and experimental means. The topic covered in the syllabus are damped and undamped free and forced vibration, Analysis of single-DOF, Two-DOF and multi-degree-of-freedom vibratory systems using energy conservation principles, vibration absorber and vibration measuring instruments.

Course Objectives:

The course aims to :

1. Study basic concepts of vibration
2. Develop competency in understanding vibration in systems
3. Develop analytical competency in solving vibration problems
4. Understand the various instrument used vibration measurement and techniques to control the vibrations

Course Outcomes:

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

1. Explain basic concepts of vibration in mechanical systems
2. Estimate natural frequency for single DOF undamped & damped free vibratory systems.
3. Determine response to forced vibrations due to excitation forces and Compute the parameters of vibration isolation system
4. Analyze vibration response of two DOF vibratory system
5. Estimate natural frequencies for multi-DOF vibratory systems
6. Describe the vibration measurement instrument and condition monitoring techniques for industrial / real life applications.

Section I

Unit-1: Fundamentals of Vibration

No. of lectures-05

Vibration and Oscillation, Causes and effects of vibrations, Parameters of vibration, Damping, Motion-periodic, non-periodic, harmonic, non-harmonic, Degree of freedom, Static equilibrium position, classification of vibration, steps involved in vibration analysis, simple harmonic motion, vector and complex method of representing vibration, fourier series and harmonic analysis.

Unit-2: Free Single Degree of freedom of Vibration system

No. of lectures-08

Undamped Free Vibration: Vibration system, Derivations for spring-mass systems, Methods of Analysis –D'Alembert's principal, newton, Energy, Lagrangian and Rayleigh method, Natural frequencies of simple systems, springs in series and parallel, Torsional and transverse vibrations, Effect of the mass of spring.

Damped Free Vibration: Types of damping, Analysis with viscous damping – Derivations for over, critical and underdamped systems, Logarithmic decrement and damping materials.

Unit-3: Forced Single Degree of freedom of Vibration system

No. of lectures-07

Forced Vibration: Introduction, Analysis of forced vibration with constant harmonic excitation – magnification factor, rotating and reciprocating unbalances and excitation of support

Vibration Isolation and Control: Force Transmissibility, motion transmissibility, typical isolators & mounts. Introduction to Semi-Active and Active Vibration control, Energy dissipated due to damping.

पुण्यश्लोक अहिल्यादेवी होळकर
सोलापूर विद्यापीठ

Section II

Unit-4: Systems with two Degree of freedom

No. of lectures-08

Principal mode and natural frequencies of vibration, normal mode and natural frequency of systems-Spring mass system, double pendulum, torsional system, geared system, undamped dynamic vibration absorber.

Unit-5: Multi-Degree of Freedom Vibration system

No. of lectures-06

Introduction, Free vibration of Multi DOF system: flexibility and stiffness influence, Rayleigh's method, Matrix iteration method, Holzer's method.

Unit-6: Vibration Measurement and condition monitoring

No. of lectures-06

Vibration Measuring Instruments: Principal of seismic Instruments, Vibrometers, accelerometer-undamped and damped, Exciter and FFT analyzer.

Condition Monitoring: Introduction to conditioning monitoring and fault diagnosis, Condition & Vibration Monitoring Techniques, vibration data collection. Experimental modal analysis, Signature analysis.

Internal Continuous Assessment (ICA):

List of Experiments/Assignments/Case Studies, etc.

Minimum 8 experiments out of following list:

1. Experiment on equivalent spring mass system
2. Experiment on study of forced vibration characteristics with and without damping
3. Determine logarithmic decrement for single degree of freedom system
4. Experiment on free torsional vibration of single or two rotor system
5. Experiment on vibration isolation system and prediction of force and motion transmissibility of system
6. Assignment on two DOF system for determination of natural frequencies
7. Assignment on Multi DOF system for determination of natural frequencies
8. Introduction to FFT analyzer and prediction of spectral response of vibrating machine
9. At least two case studies in detail based on condition monitoring and fault diagnosis

Text Books:

1. Mechanical Vibrations by S.S. Rao, fourth edition, Pearson Education
2. Mechanical Vibrations by G. K. Grover
3. Fundamentals of Mechanical Vibration by S. Graham Kelly, Tata McGraw Hill
4. Vibration Analysis by P. Srinivasan, Tata McGraw Hill
5. Mechanical Vibrations- Schaum's outline series, William W. Seto, McGraw Hill

Reference Books

1. Elements of Vibration Analysis by Leonard Meirovitch, McGraw-Hill, New York
2. Mechanical Vibrations by J.P. Den Hartog, McGraw Hill Book Company Inc
3. Mechanical Vibrations by Den, Chabril, Hinckle
4. Theory of Vibration with Applications, by W. Thomson, 2nd edition, Pearson Education



Punyashlok Ahilyadevi Holkar Solapur University, Solapur
Third Year B.TECH. (Mechanical Engineering)

Semester-V

ME 318 : Metrology

Teaching Scheme

Practical : 02Hours/week, 01 Credit

Examination Scheme

POE : 25 Marks

ICA : 25 Marks

Course Introduction:

The students of Mechanical Engineering branch are basically concerned with manufacturing various machine components in shops as per given drawing. Today the industrial processing and manufacturing techniques have become complex and complicated and their control is very much difficult by human judgment only. Therefore, the exact and precise measurements are the basic need of the industries. This course of Metrology & Instrumentation, therefore, provides required knowledge and skills and creates self confidence in students so that they can work on shop floor independently for accurate and precise measurements and manufacturing.

Course Objectives:

The course aims to:

1. Calibrate the instruments like vernier calliper and micrometer.
2. Perform angle measurement using a sine bar.
3. Measure various gear tooth elements using gear tooth vernier caliper.
4. Use dial indicator to check Lathe machine parameters like parallelism, squareness, alignment
5. Measure effective diameter of a screw thread.
6. Select adequate limits and fits for various applications.

Course Outcomes:

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

1. Calibrate the instruments like vernier calliper and micrometer.
2. Perform angle measurement using a sine bar.
3. Measure various gear tooth elements using gear tooth vernier caliper.
4. Use dial indicator to check Lathe machine parameters like parallelism, squareness, alignment etc.
5. Measure effective diameter of a screw thread.
6. Select adequate limits and fits for various applications.

Internal Continuous Assessment (ICA):

Any six from the following to be completed and two assignments are compulsory

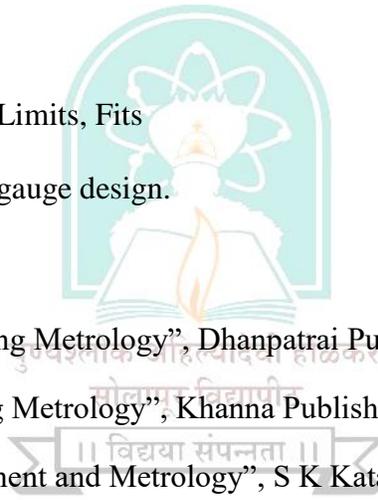
1. Calibration of Vernier caliper and micrometer.
2. Angle measurement using Sine bar or sine centre in combination with slip gauges
3. Measure gear tooth elements using gear tooth vernier caliper.
4. Use dial indicator to check Lathe machine parameters like parallelism, squareness, alignment or measure run out of a cylindrical component.
5. Use of floating carriage micrometer to measure minor, major and effective diameter of screw thread.
6. Measure effective diameter of a screw thread using a profile projector
7. A visit to a metrology laboratory in an industry

List of Assignments:

1. Assignment based on Limits, Fits
2. Assignment based on gauge design.

Text Books:

1. Gupta. I.C., Engineering Metrology”, Dhanpatrai Publications, 2005.
2. Jain R.K., Engineering Metrology”, Khanna Publishers, 2009.
3. Rajput R K, Measurement and Metrology”, S K Kataria and Sons, 2013.
4. A K Bewoor and V A Kulkarni, Metrology and Measurement, McGraw Hill Education (IND) Pvt Ltd, 2017





Punyashlok Ahilyadevi Holkar Solapur University, Solapur
Third Year B.Tech. (Mechanical Engineering)

Semester-VI

ME 321 : Transmission System Design

***Teaching Scheme**

Lectures : 03 Hours/week, 03 Credits

Practical : 02Hours/week, 01 Credit

***Examination Scheme**

ESE : 70 Marks

ISE : 30 Marks

ICA : 25 Marks

OE : 25 Marks

Course Introduction:

This course seeks to provide an introduction to design of various machine elements required in transmission system and discusses various design procedures, requirements and design methods. It introduces the design procedure for various types of gears like spur gear, helical gear, bevel gear and worm gear along with the introduction to AGMA standard. The different types of bearings, their significance and the selection of the rolling contact bearings from Manufacturer's Catalogue and the design considerations for sliding contact bearing are also included in the course content. Design of friction drives such as clutches and brakes is included

Course Objectives:

The course aims to:

1. Apply the process of design of the Spur gears.
2. Apply the helical gear design process.
3. Apply the design process for the bevel gear.
4. Apply the design process for the Worm gear.
5. Select the suitable bearing for particular application from manufacturer's catalogue.
6. Apply the design concepts of clutches and brakes.

Course Outcomes:

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

1. Design the spur gear considering criterion of bending and wear for particular application.
2. Design the helical gear considering criterion of bending and wear as per required application.
3. Design the Bevel gear considering criterion of bending and wear at particular location.
4. Design the worm gear considering criterion of strength, wear and thermal as per requirement.
5. Select the bearing from manufacturer's catalogue and to use for suitable application.
6. Calculate of dimensions of clutches and brakes required for an application

Section I

Unit-1: Spur Gears

No. of lectures-08

Design considerations of gears, gear materials, types of gear tooth failures, hunting tooth, gear tooth loads, minimum number of teeth, face width, Lewis equation, Spott's equation, Buckingham's Equation (Introductory treatment), gear design for maximum power transmission, Introduction to AGMA code.

Unit-2: Helical Gears

No. of lectures- 04

Introduction to helical gears, Virtual number of teeth, force analysis, Design of helical gears based on beam strength and wear considerations Pressure angle in the normal and transverse plane. Effective load on gear tooth.

Unit-3: Worm Gears

No. of lectures- 08

Terminology and geometrical relations, materials, standard dimensions and recommendations of worm gearing, force analysis of worm drive, friction in worm gear, efficiency and design criteria of worm drive as per IS7443-1974, load rating of worm drive, strength and wear rating of worm gear, thermal considerations in worm drive.

Section II

Unit-4: Bevel Gears

No. of lectures- 05

Introduction to bevel gears, Terminology and geometrical relation, Virtual number of teeth, force analysis, mounting of bevel gears, Design of bevel gears based on beam strength and wear strength, dynamic tooth load. Effective load on gear tooth.

Unit-5: Rolling Contact and Sliding Contact Bearings

No. of lectures-10

Rolling Contact bearing: Types, static and dynamic load capacities, Stribeck's equation, Equivalent bearing load, load life relationship, bearing life, load factor, selection of bearing from manufactures catalogue. Ball and Roller bearing, Design for variable load and speed, Bearings with probability of survival other than 90 %. Lubrication and mountings, dismounting and preloading of bearings.

Sliding contact Bearing: Bearing material and their properties, bearing types and their construction details, Hydrodynamic lubrication: Performance analysis of Hydrodynamic bearing by Raimondi and Boyd method. Introduction to hydro static bearings (Introductory Treatment).

Unit-6: Friction clutches and Brakes

No. of lectures-05

Clutches: Design of plate clutches (Single plate and Multi-plate clutch), cone clutches, centrifugal clutch, Energy equation and thermal considerations in clutches.

Brakes: Introduction, Energy equations, Band and Block brakes, external shoe brakes, Internal expanding shoe brake, Disc brake, thermal considerations.

Internal Continuous Assessment (ICA):**List of Experiments/Assignments/Case Studies, etc.****(1- mandatory and any 7 out of remaining 9)**

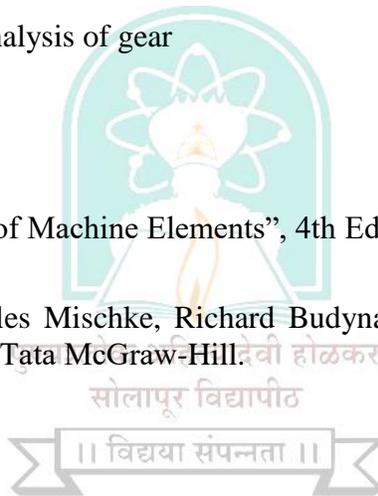
1. Design and drawing gear box using design data book.
2. Practice examples on design of spur gear.
3. Practice examples on design of helical gear.
4. Practice examples on design of bevel gear.
5. Practice examples on design of worm gear.
6. Practice examples on design of clutches.
7. Practice examples on design of brakes
8. Assignment on Rolling contact bearing
9. Assignment on sliding contact bearing
10. A case study on failure analysis of gear

Text Books:

1. Bhandari V, "Design of Machine Elements", 4th Edition, Tata McGraw-Hill Book Co, 2017.
2. Joseph Shigley, Charles Mischke, Richard Budynas and Keith Nisbett "Mechanical Engineering Design", Tata McGraw-Hill.

Reference Books:

1. Machine Design by Robert L. Norton.
2. Machine Design by Hall, Holowenko, Schaum's outline series.
3. Hand book of Mechanical Design, 2nd Edition, Gitin Maitra, L. Prasad "Tata McGrawHill,
4. Design of Machine Elements, C.S.Sharma, Kamlesh Purohit, Prentice Hall of India, Pvt. Ltd.
5. Design of Machine Elements M. F. Spotts, T. E. Shoup and L. E. Hornberger, 8th Edition, Printice Hall, 2003.
6. PSG Design Data Book





Punyashlok Ahilyadevi Holkar Solapur University, Solapur

Third Year B.Tech. (Mechanical Engineering)

Semester-VI

ME 322 : Instrumentation and Control Engineering

Teaching Scheme

Lectures : 03 Hours/week, 03 Credits

Practical : 02Hours/week, 01 Credit

Examination Scheme

ESE : 70 Marks

ISE : 30 Marks

ICA : 25 Marks

Course Introduction:

In recent years, importance of Instrumentation & Control systems has been rapidly increasing in all fields of engineering. The applications of Instrumentation & Control cover a very wide range, from design of precision control devices such as delicate electronic equipment to the design of massive equipments such as those are used for the manufacture of steel or other industrial processes. The principles of control theory are applicable to the engineering as well as non – engineering fields.

Course Objectives:

The course aims to:

1. Analyse the generalised measurement system, identify various static & dynamic characteristics of instruments, make use of various measuring instruments for measurement of temperature, pressure and vacuum.
2. Use various measuring instruments for measurement of displacement, speed and flow.
3. Use various measuring instruments for measurement of Force, torque and strain.
4. Identify manual & automatic control systems, open and closed loop systems, various modes of control, to apply block diagram algebra to determine transfer function of a given control system
5. Construct Root Locus for a given control system and comment on system stability.
6. Construct Bode Plots for a given control system and comment on system stability.

Course Outcomes:

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

1. Analyse the generalised measurement system, identify various static & dynamic characteristics of instruments, make use of various measuring instruments for measurement of temperature, pressure and vacuum.
2. Use various measuring instruments for measurement of displacement, speed and flow.



Punyashlok Ahilyadevi Holkar Solapur University, Solapur
Third Year B.Tech. (Mechanical Engineering)

Semester-VI

ME 327: Advanced Programming Concepts – II (Java)

Teaching Scheme

Lectures : 01 Hour/week, 01 Credits

Practical : 02Hours/week, 01 Credit

Examination Scheme

ICA : 25 Marks

Course Introduction:

By the end of this course, students will have gained a fundamental understanding of programming in Java by creating a variety of scripts and applications for the Web and for systems development. Java is a programming language, suitable for projects ranging from small scripts to large systems. Students will be able to explore the large standard library of Java, which supports many common programming tasks.

Course Objectives:

The course aims to:

1. To learn the basic syntax and semantics of JAVA.
2. To make students familiar with the general programming concepts of JAVA such as variables branching, loops and functions.
3. To make the students learn and program JAVA scripts.
4. To develop GUI based applications in JAVA

Course Outcomes:

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

1. Install JAVA IDE & develop simple applications using JAVA.
2. Read from and write to text files and debug errors.
3. Write Java code using advanced Java feature
4. Write JAVA applet for windows based applications such as Word & Excel and JAVA scripts for CAD software such as CATIA & AutoCAD.
5. Develop a small JRE based application or Applet for a mechanical engineering subject.
6. Use the syntax and semantics of java programming language and basic concepts of OOP

Section I

Unit-1: Introduction to Java

No. of lectures-2

Java history, Java features, Java vs. C and C++, Installing Java, Exploring the IDE, Simple Java program, JVM and command line arguments

Unit-2: General Programming

No. of lectures-2

Constants, Variable and data types, Operators and expressions, Branching and looping, calling object methods, Creating a function. Program plan, assigning static properties & dynamic properties,

Unit-3: OOP

No. of lectures-3

Define class, methods declaration, creating objects and constructors, Methods overloading, static members, nesting of methods, overriding methods, Final variables and methods, Interfaces and packages

Section II

Unit-4: Interface and packages

No. of lectures-2

Using packages and interfaces, I/O classes creating files, reading/writing characters

Unit-5: Arrays, Strings and Vectors

No. of lectures-2

1D and 2D arrays, Strings, Vectors

Unit-6: Debugging & : Applets

No. of lectures-3

Types of Errors exceptions, Exception handling using catch statements, finally statement

Applets, Applets vs. Applications

Internal Continuous Assessment (ICA):

List of Experiments/Assignments/Case Studies, etc.

1. Assignment on Fundamentals of Java programming
2. Programming exercises on Variables and parameters
3. Programming exercises on branching and looping
4. Programming exercises on Console I/O
5. Assignment on object objects, classes and methods
6. Programming exercises on Arrays, strings and vectors

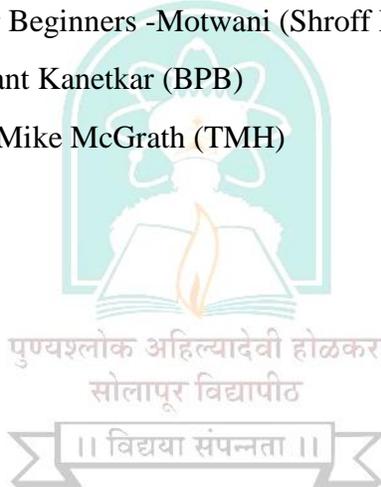
7. Programs on packages and interfaces
8. Programs on Exception handling
9. Assignment on Java Applet

Text Books:

1. Programming with JAVA: A Primer (4th Edition) - E. Balaguruswamy TMH
2. JAVA: The Complete Reference(5th Edition) - Herbert Scheldt (TMH)
3. Essential JAVA for Scientists and Engineers - Malan and Hahn (BH)

Reference Books

1. Object Oriented Programming through JAVA - P. Radhakrishna (University Press)
2. Java Programming for Beginners -Motwani (Shroff Publication)
3. Let us JAVA -Yeshwant Kanetkar (BPB)
4. JAVA in Easy Steps -Mike McGrath (TMH)





Punyashlok Ahilyadevi Holkar Solapur University
Third Year B.Tech. (Mechanical Engineering)

Semester-V

ME 328 : Mini Project

Teaching Scheme

Tutorial : 01 Hour/week, 01 Credit

Examination Scheme

ICA : 50 Marks

Course Introduction: The mini project is designed to help students develop practical ability and knowledge about practical tools/techniques in order to solve real life problems related to the industry, academic institutions and society. This course will also develop investigative, research and report writing skills and will provide an opportunity to investigate a chosen topic in considerable depth. Mini Project provides the opportunity for students to demonstrate the application of their research skills, and to apply their knowledge to complex computing problems. A mini project is an assignment that strengthens the understanding of fundamental knowledge through effective application of theoretical concepts.

Course Objectives:

The course aims to:

1. To identify potential problems in engineering.
2. To Carry out Research about the selected topic.
3. To provide a solution for the problem identified.
4. To express technical ideas, strategies and methodologies in written form.

Course Outcomes:

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

1. Identify and analyze the potential technical problems.
2. Carry out research about the selected topic
3. Seek suggestions from subject experts
4. Carry out planning and its execution with teammates
5. Develop solution for a set of requirements for the problem identified.
6. Write a report with all the contents in logical order and do Quality Presentation

6 Steps to do Successful Mini Project:

1. Selection of Topic

Selection of topic is a huge and important task in a Mini Project. One should have a clear idea about one's subject strengths and the selected topic should be relevant to it. Always select the project that has value addition.

As a graduate you should select a project which is either advantageous to a lot of people or enhance your technical and managerial skills. Your project must play its role towards a positive growth/development in that specific field.

2. Research about the selected topic online

Do some online research about the selected topic. Go through the research papers from different researchers around the world on the topics related to Mini Project. Find some websites containing the information about the materials used for Mini Project.

3. Suggestions from subject experts

Go to the subject experts in institution and interact with them about the Mini Project topic. You can also meet many subject experts from various parts of India through social media and some discussion forums. This helps you in getting suggestions in different possible ways, through which you can get a clear idea on your Mini Project topic.

4. Planning

After getting a clear idea about the topic, prepare a rough plan about procurement of resources, experimentation, analysis, simulation, survey, fabrication etc. along with your teammates. Make a rough schedule, adapt to it and distribute the work among your teammates. This will keep your Mini Project on track and individuals will come to know about their part in the Mini Project rather than any individual (leader) taking full responsibilities.

5. Execution of plans

Make sure that the materials will be ready for the experimentation/fabrication by the scheduled time. Follow the schedule during experimentation/fabrication to get accurate and efficient results.

6. Presentation

Experimentation/Fabrication does not make a Mini Project successful; one should be able to present the results in proper way. So it should be prepared in such a way that, it reflects the exact objective of your Mini Project.

The mini project shall be evaluated in two stages, Intermediate review and End Semester Review. Below points are considered for evaluation:

Sr.No.	Title
1	Quality of the presentation
2	Quality of the report
3	The quantum of the work
4	Understanding of the subject selected
5	Deal with questions

Internal Continuous Assessment (ICA)-

Guidelines for Mini-Project content & Mark Distribution

1. A group of maximum 04 students be formed for Mini-Project work.
2. Work diary and reporting to guide as per prescribed contact hours.
3. The contents of work diary shall reflect the efforts taken by project group for
 - i. Searching suitable mini-project work
 - ii. Brief report preferably on journals/ research or conference papers/ books or literature surveyed to select and bring out the mini-project area.
 - iii. Brief report of feasibility studies carried to implement the conclusion.
 - iv. Rough Sketches/ Design Calculations, etc.
4. The mini-project may be based on software/experimental/analysis/fabrication work.
5. It will be preferable if student will work on the area of mini project in line with their proposed final year project.
6. The group has to give a power point presentation in front of the faculty members / panel of department at the end of semester along with the spiral bound report (Limited to 20 Pages).

**SVERI's
College of Engineering, Pandharpur
Action Taken Report of the
Institution on Feedback Report**

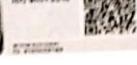
Action Taken Report of the Institution on Feedback Report

- Letter to BOS in E&T Engineering, Punyashlok Ahilyadevi Holkar Solapur University about incorporating different suggestions collected from various stakeholders regarding curriculum.



Shri Vithal Education & Research Institute's

COLLEGE OF ENGINEERING, PANDHARPUR



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Approved by A.I.C.T.E., New Delhi and affiliated to Punyashlok Ahilyadevi Holkar Solapur University, Solapur
NBA Accredited all eligible UG Programmes, NAAC Accredited Institute, ISO 9001 : 2015 Certified Institute.
Accredited by Institution of Engineers (India) & TCS.

Ref:- COEPR/2022-2023/766

Date:- 29/11/2022

To,
The Chairman,
BOS ,
Punyashlok Ahilyadevi Holkar Solapur University,
Solapur.

Subject: Suggestions to be incorporated in the syllabus of Final Year B. Tech. (Electronics and Telecommunication Engineering) w.e.f. 2023-2024.

Respected sir,

Throughout the year, we collect suggestions from various stakeholders regarding the curriculum. We have also received a number of suggestions for curriculum improvement from industrial experts and eminent professors. Accordingly, suggestions were discussed in the departmental meeting.

Our Electronics and Telecommunication Engineering Department has recommended the following suggestions for incorporation in Course Curriculum of Final year B. Tech. (Electronics and Telecommunication Engineering) w.e.f. 2023-2024 to enrich students' learning experience and make them more employable.

Name of Program: Electronics and Telecommunication Engineering

Suggestions for the Modifications in the Curriculum:

1. Introduction of new and updated Software (beyond prescribed syllabus).
a. MatLab b. NI LabView c. Simulink d. Multisim e. Proteus f. AWR g. HFSS
2. In addition to VLSI Design (As per the syllabus if we see then DDH and VLSI design both subjects are important, so according to me there should be one subject which is combination of these two subjects., In section I there should be some part of VLSI design and in section II VHDL programming, so the students can take the advantage of both subjects.
3. In addition to PLC and Industrial Controllers:Types of PLC, SCADA, Ladder Diagram, Applications: Bottle filling plant, elevator controller.
4. In addition to Mobile Communication(Mobile IP, Security in Wireless Network, Higher modulation techniques for 5G)
5. In addition to DSP Processor and application(Architectures for Programmable DSP Devices, Programmable Digital Signal Processors, Implementations of Basic DSP Algorithms)

(D. Naikwadi)
30/11/2022
लिपीक

आवक विभाग

पुण्यश्लोक अहिल्यादेवी होळकर
सोलापूर विद्यापीठ, सोलापूर.



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Page 1 of 2

Action Taken Report of the Institution on Feedback Report

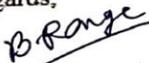
6. In addition to **Research Methodology**(Introduction to Research, Research Formulation, Data Collection and Analysis, Reporting and Thesis writing, Ethics)
7. In addition to **Satellite Communication** (Propagation effects: Introduction, Atmospheric Absorption, Cloud Attenuation, Tropospheric and Ionosphere Scintillation and Low angle fading, Rain Induced attenuation, rain induced cross polarization interference.)
8. In addition to Professional practice schools for effective training of the students and enabling them to acquire the necessary skills for the industry.
9. In addition to **Microwave Engineering** Addition of new experiments in Microwave Engineering lab related to recent trend in micro strip antennas.
10. In addition to **Data Communication** (Guided and Unguided Transmission Media, HDLC MODE transition, Network Security-Introduction, Security services, Need of Security, Key Principles of Security, Threats and Vulnerabilities, Types of Attacks)
11. In addition to the syllabus prescribed, the respective teachers try to highlight the advances in their area of specialization and the following facilities and activities help us in the attainment of the POs and PSOs.

You are requested to kindly put suggestions to the notice of the Board of Studies, Electronics and Communication Engineering.

We will be happy to interact for clarification, if any.

Thank you.

Regards,


(Dr. B. P. Ronge)
PRINCIPAL



SVERI's College of Engineering, Pandharpur

Department of Civil Engineering

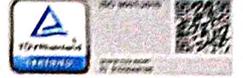
Action Taken Report of the

Institution on Feedback Report



Shri Vithal Education & Research Institute's

COLLEGE OF ENGINEERING, PANDHARPUR



P. B. No. 54, Gopalpur - Ranjani Road, Gopalpur, Tal.: Pandharpur - 413 304, Dist.: Solapur (MH)
Contact No.: 9545553888, 9545553737, E-mail : coe@sveri.ac.in, Website : www.sveri.ac.in
Approved by A.I.C.T.E., New Delhi and Affiliated to Punyashlok Ahilyadevi Holkar Solapur University, Solapur
NBA Accredited all eligible UG Programmes, NAAC A+ Accredited Institute, ISO 9001: 2015 Certified Institute,
Accredited by Institution of Engineers (India) & TCS.

Ref.: COEPR/2022-23/816

Date: 22/12/2022

To
The Director,
Punyashlok Ahilyadevi Holkar Solapur University,
Dnyanteerth Nagar, Kegaon,
Solapur-Pune National Highway,
Solapur- 413255.

Sub.: About Major Curriculum Gaps under Civil Engineering.

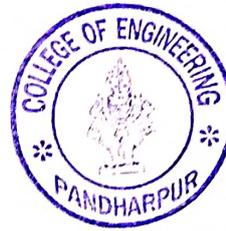
Respected Sir,

As per the requirement of National Board of Accreditation (NBA), it is required to identify the Curriculum Gaps for all Courses (Subjects), which are to be taught by subject teachers as content beyond syllabus. Accordingly, we have identified Curriculum Gaps for various Subjects under Civil Engineering Programme. We are submitting these identified Curriculum Gaps for your kind perusal and necessary action.

You are requested to kindly do further needful and oblige.

Thank you,

Yours faithfully,



B. P. Ronge
(Dr. B. P. Ronge)
PRINCIPAL

Encl.: Details of Major Curriculum Gaps for (Civil Engineering)

Civil Engineering Department

CURRICULUM

G1. Interior Design and Architectural Aspects

In the modern era, it is having more importance to interior design & architecture. By introducing this topic will made students more skillful and updated to modern techniques of aesthetic appearance, fascinating interior design and astonishing architectural drawing/design.

G2. Structural Health Auditing and Repair

With aging structures there will be great demand of structural health auditing experts. Based on their audit, there is need for suggesting repair strategies. This topic will cover various approaches of Non Destructive terms of civil engineering structures which further involve damage identification, sizing, localization and characterization of damage. This identification becomes useful for predicting the criticality of damage and assessing remaining life of structure.

G3. Civil Engineering Related Softwares

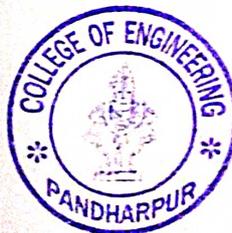
Most of the detailed analysis & design work for moderate and large structures is being performed using commercially available software. The efforts will be taken to introduce most frequently used softwares by industries in various domains of drawing, structural design, water resources etc.

G4. Practical Aspects of Construction Management

In the curriculum various sub courses of construction management viz, drawings, design, estimation, concrete technology, surveying etc are structured separately. However utilization of all these tools for completing a single project need to be introduced from stage one to final stage.

G5. Advanced Topics in Civil Engineering

In the curriculum stress is mainly given on fundamentals of Civil engineering topic. However for onsite implementation of mega projects its essential to get introduced with advanced topics like advanced construction processes and equipments, advanced materials, prefabricated structures etc.



B. P. Ronge
(Dr. B. P. Ronge)
PRINCIPAL

**SVERI's
College of Engineering, Pandharpur
Department of Computer Science and
Engineering**

**Action Taken Report of the
Institution on Feedback Report**

Letter to BOS in Computer Science and Engineering, Punyashlok Ahilyadevi Holkar Solapur University about incorporating different suggestions collected from various stakeholders regarding curriculum.

Action Taken Report of the Institution on Feedback Report



Shri Vithal Education & Research Institute's

COLLEGE OF ENGINEERING, PANDHARPUR



P. B. No. 54, Gopalpur - Ranjani Road, Gopalpur, Tal.: Pandharpur - 413 304, Dist.: Solapur (MH)

Contact No.: 9545553888, 9545553737, E-mail : coe@sveri.ac.in, Website : www.sveri.ac.in

Approved by A.I.C.T.E., New Delhi and Affiliated to Punyashlok Ahilyadevi Holkar Solapur University, Solapur

NBA Accredited all eligible UG Programmes, NAAC A+ Accredited Institute, ISO 9001: 2015 Certified Institute.

Accredited by Institution of Engineers (India) & TCS.

Ref.: COEPR/2022-2023/1774

Date:- 30/11/2022

To,
The Chairman,
BOS in Computer Science and Engineering,
Punyashlok Ahilyadevi Holkar Solapur University,
Solapur.

Subject: Suggestions to be incorporated in the syllabus of Final year B. Tech. (Computer Science and Engineering) w.e.f. 2023-2024.

Respected sir / Madam,

Throughout the year, we collect suggestions from various stakeholders regarding the curriculum. We have also received number of suggestions for curriculum improvement from industrial experts. Accordingly suggestions were discussed in the department meeting.

Our Computer Science and Engineering Department has recommended the following suggestions for incorporation in Course Curriculum of Final year B. Tech. (Computer Science and Engineering) w.e.f. 2023-2024 to enrich students' learning experience and making them more employable.

Name of Program: Computer Science and Engineering.

Suggestions for the Modifications in the Curriculum:

With reference to the new structure of Final year B. Tech (Computer Science and Engineering), following are the suggestions for the modification of the curriculum:

1. For the subject **Distributed systems**, under Recovery and consensus following points can be included: checkpoint and rollback recovery, Algorithms for co-ordinated checkpoint, asynchronous check pointing, consensus and agreement, recovery in consensus.
2. As automation is current market need, following points may be included in **Software Testing and Quality Assurance**: Automation testing – tools for criteria selection, testing, Selenium IDE and test application, Load runner.
3. In **DevOps** following points may be included: DevOps methodology, Software Version Control, Docker, Jenkins, Puppet, Ansible, Maven, Kubernetes.
4. As **Block chain technology** is newly introduced the following points can be added: crypto currency and cyber security, bit coins and use cases, Building private block chains, block chain with AI and IoT.

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Action Taken Report of the Institution on Feedback Report

5. For newly introduced and essential subject **Cyber laws and Ethics** following points may be included: IT act 2000, Information production and access control, security mandate and legislation, computer security.
6. For the subject **Human Computer Interaction**, Case Study: Case Study of Modern Systems Group ware, Virtual Reality, Augmented Reality, HCI in the software process: The software life cycle Usability engineering Iterative design and prototyping Design Focus: Prototyping in practice Design rationale, Design rules Principles to support usability Standards Golden rules and heuristics HCI patterns Evaluation techniques, Goals of evaluation, Evaluation through expert analysis, Evaluation through user participation, Choosing an evaluation method. Universal design, Universal design principles Multi-modal interaction can be included.
7. For the elective subject **Data mining**, Category wise data mining applications can be added.
8. From honors subjects, **Reinforcement learning** subject can be removed as it is already included in third year honors subject.

You are requested to kindly put suggestions to the notice of Board of Studies, Computer Science and Engineering

We will be happy to interact for clarification, if any.

Thanking you.

Regards,

B. P. Ronge

(Dr. B. P. Ronge)
PRINCIPAL



Action Taken Report of the Institution on Feedback Report



Shri Vithal Education & Research Institute's

COLLEGE OF ENGINEERING, PANDHARPUR



P. B. No. 54, Gopalpur - Ranjani Road, Gopalpur, Tal.: Pandharpur - 413 304, Dist.: Solapur (MH)

Contact No.: 9545553888, 9545553737, E-mail : coe@sveri.ac.in, Website : www.sveri.ac.in

Approved by A.I.C.T.E., New Delhi and Affiliated to Punyashlok Ahilyadevi Holkar Solapur University, Solapur

NBA Accredited all eligible UG Programmes, NAAC A+ Accredited Institute, ISO 9001: 2015 Certified Institute.

Accredited by Institution of Engineers (India) & TCS.

Ref.: COEPR/2022-2023/775

Date:- 30/11/2022

To,
The Chairman,
BOS in Computer Science and Engineering,
Punyashlok Ahilyadevi Holkar Solapur University,
Solapur.

Subject: Suggestions to be incorporated in the syllabus of T.Y. B. Tech. (Computer Science and Engineering) w.e.f. 2022-2023.

Respected sir / Madam,

Throughout the year, we collect suggestions from various stakeholders regarding the curriculum. We have also received number of suggestions for curriculum improvement from industrial experts. Accordingly suggestions were discussed in the department meeting.

Our Computer Science and Engineering Department has recommended the following suggestions for incorporation in Course Curriculum of T. Y. B. Tech. (Computer Science and Engineering) w.e.f. 2022-2023 to enrich students' learning experience and making them more employable.

Name of Program: Computer Science and Engineering.

Suggestions for the Modifications in the Curriculum:

1. Artificial Intelligence subject should be included in first semester
2. ICA Marks weightage of Mini Project can be increased in University Curriculum.
3. Mobile Application Development subject should be included in first semester.
4. Self-Learning Technical subject can be removed due to additional Honors subjects
5. System programming subject can be shifted to second semester.
6. Management and Economics related subjects may be added in self-learning or open elective subjects
7. Add on courses can be included in the curriculum.
8. Motivation should be given for interdisciplinary mini projects
9. Include any kind of practical exposure to industry practices and standards of work.
10. Include some contents related to latest trends across the global for each course.
11. Topics related to cross cutting issues such as gender; professional ethics, human values, environment and sustainability can be added into the curriculum.
12. Machine Learning & Artificial Intelligence should have more focus in the curriculum.

B. Range

Action Taken Report of the Institution on Feedback Report

13. Industrial exposure should be given at third year level by adding industrial visit to more subjects.
14. In ICA of Mini Project/Design Report drawing using any design software can be included.

You are requested to kindly put suggestions to the notice of Board of Studies, Computer Science and Engineering

We will be happy to interact for clarification, if any.

Thanking you.

Regards,

B. P. Ronge

(Dr. B. P. Ronge)
PRINCIPAL

