

Academic Course Description

BHARATH UNIVERSITY
 Faculty of Engineering and Technology
 Department of Mechanical Engineering
BME 4L2- MANUFACTURING TECHNOLOGY LAB - I
 Fourth Semester, 2016-17 (Even Semester)

Course (catalog) description

To make the students understand the concept of standardization and interchangeability.

Compulsory/Elective course : Compulsory

Credit hours : 2

Course Coordinator : **Mr. R. J. Golden Renjith Nimal**

Instructors :

Name of the instructor	Class handling	Office location	Office phone	Email (domain:@bharathuniv.ac.in)	Consultation
Mr. R. J. Golden Renjith Nimal	3 rd Year Mech, Sec 'A'	Machine Shop	9994351938	goldenrenjith.mech@bharathuniv.ac.in	9.50 to 12.30 pm
Mr. V. P. Durairaj	3 rd Year Mech, Sec 'E'	Machine Shop	9884906033	Durairaj.mech@bharathuniv.ac.in	1.30 to 4.00 pm
Mr. R. Hariharan	3 rd Year Mech, Sec 'D'	Machine Shop	9884910167	hariharan.mech@bharathuniv.ac.in	9.50 to 12.30 pm
Mr. Jeeva Bharathi	3 rd Year Mech, Sec 'C'	Machine Shop	9087997034	Jeevabharathi.mech@bharathuniv.ac.in	1.30 to 4.00 pm
Mr. J. Manikandan	3 rd Year Mech, Sec 'B'	Machine Shop	9952586083	Manikandan.mech@bharathuniv.ac.in	1.30 to 4.00 pm

Relationship to other courses:

Pre –requisites : **Manufacturing Technology**

Assumed knowledge : To make the students understand the concept of standardization and interchangeability

Following courses : Nil

Syllabus Contents

LIST OF EXPERIMENTS:

1. Study of Centre, Capstan and Automatic lathes and their accessories.
2. Exercise on Plane turning and Step turning
3. Exercise on taper turning and knurling
4. Exercise on Eccentric turning
5. Exercise on thread cutting and grooving
6. Exercise on drilling and reaming
7. Exercise on drilling and boring
8. Determination of cutting forces in turning using tool dynamometer.
9. Determination of tool wear using tool makers microscope.

Computer usage: Nil

Professional component

General	-	0%
Basic Sciences	-	0%
Engineering sciences & Technical arts	-	0%
Professional subject	-	100%

Broad area: Engineering

Test Schedule

S. No.	Test	Tentative Date	Portions	Duration
1	Cycle Test-1	August 2 nd week	Session 1 to 14	2 Periods
2	Cycle Test-2	September 2 nd week	Session 15 to 28	2 Periods
3	Model Test	October 3 rd week	Session 1 to 45	3 Hrs
4	University Examination	November	All sessions / Units	3 Hrs.

To make the students understand the concept of standardization and interchangeability	Correlates to program outcome		
	H	M	L
1. Students will understand lathe and its working	a	i	
2. Students will get aware about different tools used in manufacturing.	k		l
3. Student will understand the concept of tool wear.		i	
4. Learn the use of machineries.			l
5. Learn the different methods of manufacturing			
6. Learn to do force calculations	e	i	

H: high correlation, M: medium correlation, L: low correlation

Draft Lecture Schedule

S.NO	Topics	Problem solving (Yes/No)
1.	Study of Centre, Capstan and Automatic lathes and their accessories.	No
2.	Exercise on Plane turning and Step turning	No
3.	Exercise on taper turning and knurling	No
4.	Exercise on Eccentric turning	No
5.	Exercise on thread cutting and grooving	No
6.	Exercise on drilling and reaming	No
7.	Exercise on drilling and boring	No
8.	Determination of cutting forces in turning using tool dynamometer	No
9.	Determination of tool wear using tool makers microscope.	No

Teaching Strategies

The teaching in this course aims at establishing a good fundamental understanding of the areas covered using:

- Formal face-to-face lectures
- Tutorials, which allow for exercises in problem solving and allow time for students to resolve problems in understanding of lecture material.
- Laboratory sessions, which support the formal lecture material and also provide the student with practical construction, measurement and debugging skills.
- Small periodic quizzes, to enable you to assess your understanding of the concepts.

Evaluation Strategies

Cycle Test – I	-	10%
Cycle Test – II	-	10%
Model Test	-	25%
Attendance	-	5%
Final exam	-	50%

Prepared by Mr. R. J. Golden Renjith Nimal

Addendum

ABET Outcomes expected of graduates of B.Tech / MECH / program by the time that they graduate:

- a) The ability to apply knowledge of mathematics, science, and engineering fundamentals.
- b) The ability to identify, formulate and solve engineering problems.
- c) The ability to design a system, component, or process to meet the desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- d) The ability to design and conduct experiments, as well as to analyze and interpret data
- e) The ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
- f) The ability to apply reasoning informed by the knowledge of contemporary issues.
- g) The ability to broaden the education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- h) The ability to understand professional and ethical responsibility and apply them in engineering practices.
- i) The ability to function on multidisciplinary teams.
- j) The ability to communicate effectively with the engineering community and with society at large.
- k) The ability in understanding of the engineering and management principles and apply them in project and finance management as a leader and a member in a team.
- l) The ability to recognize the need for, and an ability to engage in life-long learning.

Program Educational Objectives

PEO1: PREPARATION:

Mechanical Engineering graduates are enthusiastic to provide strong foundation in mathematical, scientific and engineering fundamentals necessary to analyze, formulate and solve engineering problems in the field of Mechanical Engineering.

PEO2: CORE COMPETENCE:

Mechanical Engineering graduates have competence to enhance the skills and experience in defining problems in the field of Mechanical Engineering and Technology design and implement, analyzing the experimental evaluations, and finally making appropriate decisions.

PEO3: PROFESSIONALISM:

Mechanical Engineering graduates made competence to enhance their skills and embrace new thrust areas through self-directed professional development and post-graduate training or education.

PEO4: PROFICIENCY:

Mechanical Engineering graduates became skilled to afford training for developing soft skills such as proficiency in many languages, technical communication, verbal, logical, analytical, comprehension, team building, inter personal relationship, group discussion and leadership skill to become a better professional.

PEO5: ETHICS:

Mechanical Engineering graduates are morally merged to apply the ethical and social aspects of modern Engineering and Technology innovations to the design, development, and usage of new products, machines, gadgets, devices, etc.

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Course Teacher	Signature
Mr. R. J. Golden Renjith Nimal	
Mr. V. P. Durairaj Mr. R. Hariharan	
Mr. Jeeva Bharathi Mr. J. Manikandan	

Course Coordinator

Mr. R. J. Golden
Renjith Nimal

HOD/MECH