



## 64. Elective 1

### Course Specification of Tribology

I. Course Identification and General Information:						
1.	Course Title:	Tribology (Elective).				
2.	Course Code & Number:	ME337				
3.	Credit hours:	C.H				TOTAL CR. HRS.
		Th.	Seminar/Tu	Pr	Tr.	
		2	-	-	-	2
4.	Study level/ semester at which this course is offered:	Fourth Year – First Semester.				
5.	Pre –requisite (if any):	Machine Design-I (ME235).				
6.	Co –requisite (if any):	Machine Design-II (ME336).				
7.	Program (s) in which the course is offered:	Mechanical Engineering Program.				
8.	Language of teaching the course:	English Language.				
9.	Location of teaching the course:	Mechanical Engineering Department.				
10.	Prepared By:	Prof. Mohammed Ahmed Al-Bukahiti.				
11.	Date of Approval					

II. Course Description:
<p>Tribology is the study of the principles of friction, wear, and lubrication of machine elements. It gives the <b>students</b> an interdisciplinary understanding of the tribological behavior, design, and maintenance of different machine elements such as journal and rolling element bearings, cams-followers, gears, hard disk drives, seals, pumps, compressors, etc. Topics include the fundamental of surface topography and contact mechanics, friction, lubricants and lubrication, wear and wear mechanisms, as well as surface engineering, selection and design for tribological applications. The course also includes case studies on bearings, automotive tribology, manufacturing process, and medical engineering that illustrate some of the modern engineering application in which tribology principles play vital roles.</p>

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III. Alignment course intended learning outcomes (CILOs)		Referenced PILOs
a1	Illustrate an understanding of the fundamentals of tribology and the tribological parameters of all classes of materials.	A2
a2	Recognize the principles of friction, wear, wear mechanisms, lubrication, lubrication regimes, hydrodynamic lubrication, hydrostatic lubrication, bio-tribology, and micro/ Nano-tribology.	A3
b1	Explore concepts of tribology for the performance and design of machine elements.	B1
b2	Compare between different wears, wear mechanisms, and causes of friction in various contact surfaces.	B2
c1	Choose proper materials and lubricants for a given tribological applications.	C1
d1	Perform efficient search in the literature of tribology and appraise results from the published papers.	D4

**(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:**

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1- Illustrate an understanding of the fundamentals of tribology and the tribological parameters of all classes of materials.	Active Lectures. Self-Learning from Textbooks.	Written Tests Homework and
a2- Recognize the principles of friction, wear, wear mechanisms, lubrication, lubrication regimes, hydrodynamic lubrication, hydrostatic lubrication, bio-tribology, and micro/ Nano tribology.	Interactive Class Discussions. Project / Presentation	Written Assignments Presentations Case Studies

**(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:**

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
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<p><b>b1-</b> Explore concepts of tribology for the performance and design of machine elements.</p>	<p>Active Lectures.                  Self-Learning from Textbooks.</p>	<p>Written Tests                  Homework and</p>
<p><b>b2-</b> Compare between different wears, wear mechanisms, and causes of friction in various contact surfaces.</p>	<p>Interactive Class Discussions.                  Project / Presentation</p>	<p>Written Assignments                  Presentations                  Case Studies</p>

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<b>© Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
<b>c1-</b> Choose proper materials and lubricants for a given tribological applications.	Active Lectures. Self-Learning from Textbooks. Interactive Class Discussions. Project / Presentation	Written Tests Homework and Written Assignments Presentations Case Studies

<b>(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
<b>d1-</b> Perform efficient search in the literature of tribology and appraise results from the published papers.	Active Lectures. Self-Learning from Textbooks. Interactive Class Discussions. Project / Presentation	Written Tests Homework and Written Assignments Presentations Case Studies

<b>IV. Course Content:</b>					
<b>A – Theoretical Aspect:</b>					
Order	Units/Topics List	Learning Outcomes	Sub Topics List	Number of Weeks	Contact hours
1.	Introduction	a1, a2	- What is tribology? - History of tribology - Need of tribology as a separate subject - Economic considerations	1	2
2.	Surface Topography and Surfaces in Contact	a1, a2, b1, b2, c1, d1	- Introduction - Measurement of surface topography	2	4

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			<ul style="list-style-type: none"> <li>- Quantifying surface roughness</li> <li>- The topography of engineering surfaces</li> <li>- Contact between surfaces: Elastic stress fields, Plastic deformation, Deformation of a single asperity, Contact of coated surfaces, Surface energy in elastic contact</li> </ul>		
3.	Friction	a1, a2, b1, b2, c1, d1	<ul style="list-style-type: none"> <li>- Definition of friction</li> <li>- The laws of friction</li> <li>- Origin of friction</li> <li>- Friction of metals</li> <li>- Friction of ceramics materials</li> <li>- Friction of lamellar solids</li> <li>- Friction of polymers</li> <li>- Frictional heating</li> </ul>	2	4
4.	Lubricants and Lubrication	a1, a2, b1, b2, c1, d1	<ul style="list-style-type: none"> <li>- Viscosity - Compositions and properties of oil and greases</li> <li>- Hydrodynamic lubrication</li> <li>- Elastohydrodynamic lubrication</li> <li>- Boundary lubrication</li> <li>- Solis lubrication</li> </ul>	2	4
5.	Mid – Term Exam	a1, a2, b1, b2, c1, d1	<ul style="list-style-type: none"> <li>- The first four lectures</li> </ul>	1	2
6.	Sliding Wear	a1, a2, b1, b2, c1, d1	<ul style="list-style-type: none"> <li>- Introduction and terminology</li> <li>- Testing methods</li> <li>- The Archard wear equation</li> <li>- Observations of damage during the sliding wear of metals</li> </ul>	2	4

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			<ul style="list-style-type: none"> <li>- Mechanisms of the sliding wear of metals</li> <li>- Wear regime maps for metals</li> <li>- Fretting wear of metals</li> <li>- Wear of metals in lubricated contacts</li> <li>- Sliding wear of ceramics and polymers</li> </ul>		
7.	Wear by Hard Particles	a1, a2, b1, b2, c1, d1	<ul style="list-style-type: none"> <li>- Introduction and terminology</li> <li>- Particle properties: hardness, shape and size</li> <li>- Abrasive wear</li> <li>- Erosion by solid particle impact</li> </ul>	1	2
8.	Surface Engineering	a1, a2, b1, b2, c1, d1	<ul style="list-style-type: none"> <li>- Introduction - Modification of the component surface with no compositional change</li> <li>- Modification of the component surface involving compositional change</li> <li>- Coating deposited on to the component surface</li> <li>- Tribological behavior and its application</li> </ul>	2	4
9.	Design and Selection of Materials for Tribological Application	a1, a2, b1, b2, c1, d1	<ul style="list-style-type: none"> <li>- Introduction and general principles</li> <li>- Estimation of wear rates</li> <li>- The system approach</li> <li>- Reducing wear by changing the operating variables</li> <li>- Effect of lubrication</li> <li>- Selection of materials and surface engineering methods</li> </ul>	1	2
10.	Applications and Case Studies	a1, a2, b1, b2, c1, d1	<ul style="list-style-type: none"> <li>- Introduction</li> <li>- Bearings: rolling and sliding</li> <li>- Automotive tribology</li> <li>- Tribology in manufacturing</li> </ul>	1	2

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			- Bio-Tribology: natural and artificial hip joints		
11.	Final Exam	a1, a2, b1, b2, c1, d1	All the fifteen lectures.	1	2
<b>Number of Weeks /and Units Per Semester</b>				<b>16</b>	<b>32</b>

### V. Teaching strategies of the course:

- Active Lectures.
- Interactive Class Discussions.
- Self-learning from Textbooks and Scientific Journals.
- Project / Presentation.

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<b>VI. Assignments:</b>				
No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	Surface Topography and Surfaces in Contact	a1, a2, b1, b2, c1, d1	2 <sup>nd</sup> and 3 <sup>rd</sup> weeks	2
2	Friction	a1, a2, b1, b2, c1, d1	4 <sup>th</sup> and 5 <sup>th</sup> weeks	2
3	Lubricants and Lubrication	a1, a2, b1, b2, c1, d1	6 <sup>th</sup> and 7 <sup>th</sup> weeks	2
4	Sliding Wear	a1, a2, b1, b2, c1, d1	8 <sup>th</sup> and 9 <sup>th</sup> weeks	2
5	Wear by Hard Particles	a1, a2, b1, b2, c1, d1	10 <sup>th</sup> week	2
6	Surface Engineering	a1, a2, b1, b2, c1, d1	11 <sup>th</sup> and 12 <sup>th</sup> weeks	2
7	Design and Selection of Materials for Tribological Application	a1, a2, b1, b2, c1, d1	13 <sup>th</sup> and 14 <sup>th</sup> weeks	2
8	Applications and Case Studies	a1, a2, b1, b2, c1, d1	15 <sup>th</sup> week	6
<b>Total</b>				<b>20</b>

<b>VII. Schedule of Assessment Tasks for Students During the Semester:</b>					
No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignments	Weekly	10	10 %	a1, a2, b1, b2, c1, d1
2	Quizzes (3)	4 <sup>th</sup> , 10 <sup>th</sup> and 13 <sup>th</sup> weeks	10	10 %	a1, a2, b1, b2, c1, d1
3	Mid-Term Exam	8 <sup>th</sup> week	20	20 %	a1, a2, b1, b2, c1, d1
4	Final Exam	16 <sup>th</sup> week	60	60 %	a1, a2, b1, b2, c1, d1

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<b>Total</b>	<b>100</b>	<b>100 %</b>	
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<b>VIII. Learning Resources:</b>	
<ul style="list-style-type: none"> <li>Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher).</li> </ul>	
<b>1- Required Textbook(s) (maximum two).</b>	
	1- Ian Hutchings, Philip Shipway, 2017, Tribology: Friction and Wear of Engineering Materials, 2 <sup>nd</sup> Edition, Butterworth-Heinemann – EISEVIER. 2- Gwidon W.Stachowiak, Anderw W.Batchelor , 2014, Engineering Tribology, 4 <sup>th</sup> Edition, Butterworth-Heinemann – EISEVIER.
<b>2- Essential References.</b>	
	1- J. A. Williams, 2005, Engineering Tribology, Oxford Univ. Press, 2- B. Bhushan, 2002, Introduction to Tribology, John Wiley & Sons, Inc., New York, 3- Prasanta Sahoo, 2011, Engineering Tribology, PHI Learning Private Ltd, New Delhi, 4- Harish Hirani. 2016, Fundamentals of Engineering Tribology with Applications, 1 <sup>st</sup> Edition, Cambridge Uni. Press 5- Bhushan, B., 2013, Principles and Applications of Tribology, Second Edition, John Wiley & Sons, UK. 6- Neale, M.J. , 1995, “Tribology Hand Book”, Butterworth-Heinemann,.
<b>3- Electronic Materials and Web Sites etc.</b>	
	1-Lecture Material in PPT
<b>I. Course Policies:</b>	
<b>1</b>	<b>Class Attendance:</b> - The student should be attending not less than 75% of total contact hours of the subject, otherwise he will not able to take exam and <b>be considered</b> as <b>an</b> exam failure. If the student is absent due to illness, he/she should bring <b>an approved</b> statement from university Clinic.
<b>2</b>	<b>Tardy:</b> - For <b>lateness</b> in attending the class, the student will be initially <b>notified</b> . If he <b>repeats</b> late in attending class <b>he will be considered absent</b> .
<b>3</b>	<b>Exam Attendance/Punctuality:</b> - The student should attend the exam on time. He is <b>permitted</b> to attend the exam half one hour from exam beginning, after that he/she will not <b>be</b> permitted to take exam and he/she <b>is considered</b> absent in <b>the</b> exam.

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4	<p><b>Assignments &amp; Projects:</b></p> <p>- In general one assignment is given after each chapter of a course. The student should submit the assignment on time, mostly one week after <b>giving</b> the assignment</p>
5	<p><b>Cheating:</b></p> <p>- For cheating in exam, the student <b>is</b> considered as <b>failure</b>. <b>In case</b> the cheating <b>is</b> repeated three times during study the student will <b>be disengaged</b> from the Faculty</p>
6	<p><b>Plagiarism:</b></p> <p>Plagiarism is the attending of the student the exam of a course instead of other student. If the examination committee <b>proved</b> a plagiarism of a student, he will be disengaged from the Faculty. The final disengagement of the student from the Faculty should be confirmed from the Student <b>Affair Council</b> of the university.</p>
7	<p><b>Other policies:</b></p> <ul style="list-style-type: none"> <li>- The mobile phone is not allowable <b>to be used</b> during class lecture. It must <b>be switched off</b>, otherwise the student will <b>be ordered</b> to leave the lecture room.</li> <li>- The mobile phone is not allowed <b>to be taken during the examination time</b>.</li> <li>- Lecture notes and assignments <b>may be</b> given directly to students using soft or hard copy.</li> </ul>

<b>Reviewed By</b>	<p><b><u>Vice Dean for Academic Affairs and Post Graduate Studies: Asst. Prof. Dr. Tarek A. Barakat</u></b></p> <p><b><u>President of Quality Assurance Unit: Assoc. Prof. Dr. Mohammed Algorafi</u></b></p> <p><b><u>Name of Reviewer from the Department: Assoc. Prof. Dr. Khalil Al-Hatab</u></b></p>
	<p><b><u>Deputy Rector for Academic Affairs Asst. Prof. Dr. Ibrahim AlMutaa</u></b></p> <p><b><u>Assoc. Prof. Dr. Ahmed Mujahed</u></b></p> <p><b><u>Asst. Prof. Dr. Munasar Alsubri</u></b></p>

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## 64. Course Plan of Tribology

<b>I. Information about Faculty Member Responsible for the Course:</b>							
<b>Name of Faculty Member</b>	Prof.Dr. Mohammed Ahmed Al-Bukhaiti	<b>Office Hours</b>					
<b>Location &amp; Telephone No.</b>	University of Sana'a, Faculty of Engineering, +00967 777161416	SAT	SUN	MON	TUE	WED	THU
<b>E-mail</b>	<a href="mailto:m.albukhati@eng-su.edu.ye">m.albukhati@eng-su.edu.ye</a> <a href="mailto:m.albukhaiti@gmail.com">m.albukhaiti@gmail.com</a>						

<b>II. Course Identification and General Information:</b>						
1.	Course Title:	Tribology (Elective).				
2.	Course Number & Code:	ME337.				
3.	Credit hours:	C.H				TOTAL CR. HRS.
		Th.	Seminar/Tu	Pr	Tr.	
		2	-	-	-	
4.	Study level/year at which this course is offered:	Fourth Year – First Semester				
5.	Pre –requisite (if any):	Machine Design-I (ME235).				
6.	Co –requisite (if any):	Machine Design-II (ME336).				
7.	Program (s) in which the course is offered	Mechanical Engineering Program.				
8.	Language of teaching the course:	English Language.				
9.	System of Study:	Semesters.				
10.	Mode of delivery:	Lectures.				
11.	Location of teaching the course:	Mechanical Engineering Department.				

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### III. Course Description:

Tribology is the study of the principles of friction, wear, and lubrication of machine elements. It gives the student an interdisciplinary understanding of the tribological behavior, design, and maintenance of different machine elements such as journal and rolling element bearings, cams-followers, gears, hard disk drives, seals, pumps, compressors, etc. Topics include the fundamental of surface topography and contact mechanics, friction, lubricants and lubrication, wear and wear mechanisms, as well as surface engineering, selection and design for tribological applications. The course also includes case studies on bearings, automotive tribology, manufacturing process, and medical engineering that illustrate some of the modern engineering application in which tribology principles play vital roles.

### IV. Intended learning outcomes (ILOs) of the course:

- Brief summary of the knowledge or skill the course is intended to develop:
  1. Illustrate an understanding of the fundamentals of tribology and the tribological parameters of all classes of materials.
  2. Recognize the principles of friction, wear, wear mechanisms, lubrication, lubrication regimes, hydrodynamic lubrication, hydrostatic lubrication, bio-tribology, and micro/ Nano-tribology.
  3. Explore concepts of tribology for the performance and design of machine elements.
  4. Compare between different wears, wear mechanisms, and causes of friction in various contact surfaces.
  5. Choose proper materials and lubricants for a given tribological applications.
  6. Perform efficient search in the literature of tribology and acquire results from the published papers.

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<b>V. Course Content:</b>				
<ul style="list-style-type: none"> <li>Distribution of Semester Weekly Plan of Course Topics/Items and Activities.</li> </ul>				
<b>A – Theoretical Aspect:</b>				
<b>Order</b>	<b>Topics List</b>	<b>Sub Topics List</b>	<b>Week Due</b>	<b>Contact Hours</b>
1.	Introduction	<ul style="list-style-type: none"> <li>- What is tribology?</li> <li>- History of tribology</li> <li>- Need of tribology as a separate subject</li> <li>- Economic considerations</li> </ul>	1 <sup>st</sup> week	2
2.	Surface Topography and Surfaces in Contact	<ul style="list-style-type: none"> <li>- Introduction</li> <li>- Measurement of surface topography</li> <li>- Quantifying surface roughness</li> <li>- The topography of engineering surfaces</li> <li>- Contact between surfaces: Elastic stress fields, Plastic deformation, Deformation of a single asperity, Contact of coated surfaces, Surface energy in elastic contact</li> </ul>	2 <sup>nd</sup> and 3 <sup>rd</sup> weeks	4
3.	Friction	<ul style="list-style-type: none"> <li>- Definition of friction</li> <li>- The laws of friction</li> <li>- Origin of friction</li> <li>- Friction of metals</li> <li>- Friction of ceramics materials</li> <li>- Friction of lamellar solids</li> <li>- Friction of polymers</li> <li>- Frictional heating</li> </ul>	4 <sup>th</sup> and 5 <sup>th</sup> weeks	4
4.	Lubricants and Lubrication	<ul style="list-style-type: none"> <li>- Viscosity - Compositions and properties of oil and greases</li> <li>- Hydrodynamic lubrication</li> <li>- Elastohydrodynamic lubrication</li> <li>- Boundary lubrication</li> </ul>	6 <sup>th</sup> and 7 <sup>th</sup> weeks	4

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		- Solis lubrication		
5.	Mid – Term Exam1	- The first four lectures	8 <sup>th</sup> week	2
6.	Sliding Wear	<ul style="list-style-type: none"> <li>- Introduction and terminology</li> <li>- Testing methods</li> <li>- The Archard wear equation</li> <li>- Observations of damage during the sliding wear of metals</li> <li>- Mechanisms of the sliding wear of metals</li> <li>- Wear regime maps for metals</li> <li>- Fretting wear of metals</li> <li>- Wear of metals in lubricated contacts</li> <li>- Sliding wear of ceramics and polymers</li> </ul>	9 <sup>th</sup> and 10 <sup>th</sup> weeks	4
7.	Wear by Hard Particles	<ul style="list-style-type: none"> <li>- Introduction and terminology</li> <li>- Particle properties: hardness, shape and size</li> <li>- Abrasive wear</li> <li>- Erosion by solid particle impact</li> </ul>	11 <sup>th</sup> week	2
8.	Surface Engineering	<ul style="list-style-type: none"> <li>- Introduction - Modification of the component surface with no compositional change</li> <li>- Modification of the component surface involving compositional change</li> <li>- Coating deposited on to the component surface</li> <li>- Tribological behavior and its application</li> </ul>	12 <sup>th</sup> and 13 <sup>th</sup> weeks	4
10.	Design and Selection of Materials for Tribological Application	<ul style="list-style-type: none"> <li>- Introduction and general principles</li> <li>- Estimation of wear rates</li> <li>- The system approach</li> </ul>	14 <sup>th</sup> week	2

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		- Reducing wear by changing the operating variables - Effect of lubrication - Selection of materials and surface engineering methods		
11.	Applications and Case Studies	- Introduction - Bearings: rolling and sliding - Automotive tribology - Tribology in manufacturing - Bio-Tribology: natural and artificial hip joints	15 <sup>th</sup> week	2
12.	Final Exam	All the fifteen lectures.	16 <sup>th</sup> week	2
<b>Number of Weeks /and Units Per Semester</b>			<b>16</b>	<b>32</b>

### VI. Teaching strategies of the course:

- Active Lectures.
- Interactive Class Discussions.
- Self-learning from Textbooks and Scientific Journals.
- Project / Presentation.

### VII. Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	Surface Topography and Surfaces in Contact	a1, a2, b1, b2, c1, d1	2 <sup>nd</sup> and 3 <sup>rd</sup> weeks	2
2	Friction	a1, a2, b1, b2, c1, d1	4 <sup>th</sup> and 5 <sup>th</sup> weeks	2
3	Lubricants and Lubrication	a1, a2, b1, b2, c1, d1	6 <sup>th</sup> and 7 <sup>th</sup> weeks	2
4	Sliding Wear	a1, a2, b1, b2, c1, d1	8 <sup>th</sup> and 9 <sup>th</sup> weeks	2
5	Wear by Hard Particles	a1, a2, b1, b2, c1, d1	10 <sup>th</sup> week	2

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6	Surface Engineering	a1, a2, b1, b2, c1, d1	11 <sup>th</sup> and 12 <sup>th</sup> weeks	2
7	Design and Selection of Materials for Tribological Application	a1, a2, b1, b2, c1, d1	13 <sup>th</sup> and 14 <sup>th</sup> weeks	2
8	Applications and Case Studies	a1, a2, b1, b2, c1, d1	15 <sup>th</sup> week	6
<b>Total</b>				<b>20</b>

<b>VIII. Schedule of Assessment Tasks for Students During the Semester:</b>				
Assessment	Type of Assessment Tasks	Week Due	Mark	Proportion of Final Assessment
1	Assignments	Weekly	10	10 %
2	Quizzes (3)	4 <sup>th</sup> , 10 <sup>th</sup> and 13 <sup>th</sup> weeks	10	10 %
3	Mid-Term Exam	8 <sup>th</sup> week	20	20 %
4	Final Exam	16 <sup>th</sup> week	60	60 %
<b>Total</b>			<b>100</b>	<b>100%</b>

<b>IX. Learning Resources:</b>
• Written in the following order: (Author – Year of publication – Title – Edition – Place of publication – Publisher).
<b>1- Required Textbook(s) (maximum two ).</b>
1- Ian Hutchings, Philip Shipway, 2017, Tribology: Friction and Wear of Engineering Materials, 2 <sup>nd</sup> Edition, Butterworth-Heinemann – ELSEVIER. 2- Gwidon W.Stachowiak, Anderw W.Batchelor , 2014, Engineering Tribology, 4 <sup>th</sup> Edition, Butterworth-Heinemann – ELSEVIER.
<b>2- Essential References.</b>
1- J. A. Williams, 2005, Engineering Tribology, Oxford Univ. Press, 2- B. Bhushan, 2002, Introduction to Tribology, John Wiley & Sons, Inc., New York,

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<p>3- Prasanta Sahoo, 2011, Engineering Tribology, PHI Learning Private Ltd, New Delhi,</p> <p>4- Harish Hirani. 2016, Fundamentals of Engineering Tribology with Applications, 1<sup>st</sup> Edition, Cambridge Uni. Press</p> <p>5- Bhushan, B., 2013, Principles and Applications of Tribology, Second Edition, John Wiley &amp; Sons, UK.</p> <p>6- Neale, M.J. , 1995, “Tribology Hand Book”, Butterworth-Heinemann,.</p>
<p><b>3- Electronic Materials and Web Sites etc.</b></p>
<p>1-Lecture Material in PPT</p>

II. Course Policies:	
1	<p><b>Class Attendance:</b></p> <p>- The student should be attending not less than 75% of total contact hours of the subject, otherwise he will not able to take exam and <b>be considered</b> as <b>an</b> exam failure. If the student is absent due to illness, he/she should bring <b>an approved</b> statement from university Clinic.</p>
2	<p><b>Tardy:</b></p> <p>- For <b>lateness</b> in attending the class, the student will be initially <b>notified</b>. If he <b>repeats</b> late in attending class <b>he will be considered absent</b>.</p>
3	<p><b>Exam Attendance/Punctuality:</b></p> <p>- The student should attend the exam on time. He is <b>permitted</b> to attend the exam half one hour from exam beginning, after that he/she will not <b>be</b> permitted to take exam and he/she <b>is considered</b> absent in <b>the</b> exam.</p>
4	<p><b>Assignments &amp; Projects:</b></p> <p>- In general one assignment is given after each chapter of a course. The student should submit the assignment on time, mostly one week after <b>giving</b> the assignment</p>
5	<p><b>Cheating:</b></p> <p>- For cheating in exam, the student <b>is</b> considered as <b>failure</b>. <b>In case</b> the cheating <b>is</b> repeated three times during study the student will <b>be disengaged</b> from the Faculty</p>
6	<p><b>Plagiarism:</b></p> <p>Plagiarism is the attending of the student the exam of a course instead of other student. If the examination committee <b>proved</b> a plagiarism of a student, he will be disengaged from the Faculty. The final disengagement of the student from the Faculty should be confirmed from the Student <b>Affair Council</b> of the university.</p>
7	<p><b>Other policies:</b></p>

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- The mobile phone is not allowable **to be used** during class lecture. It must **be switched off**, otherwise the student will **be ordered** to leave the lecture room.
- The mobile phone is not allowed **to be taken during the examination time**.
- Lecture notes and assignments **may be** given directly to students using soft or hard copy.

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