TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Baghdad University- Al-Khwarizmi College of Engineering
2. University Department/Centre	Biomedical Engineering
3. Course title/code	Design of Machine Elements
4. Programme(s) to which it contributes	BSc in Biomedical Engineering
5. Modes of Attendance offered	Full time attendance
6. Semester/Year	One Semesters per year
7. Number of hours tuition (total)	45 hours in the semester
8. Date of production/revision of this specification	
9. Aims of the Course	
The course gives knowledge of -Machine elements and their design, functional principles, mechanisms, and .integration in machinery -The functions of some common machine elements and the solution of design and - .engineering problems associated with these -How to establish structural and dynamics models for mechanical behavior with -	

.basis in subsystem or component
-The application of design criteria for different (mechanical) functional and design -
.requirements for various machine elements and components
- Choice of reasonable design and engineering solutions with basis in basic understanding of mechanical behavior and design criteria.

10· Learning Outcomes, Teaching ,Learning and Assessment Methods
A- Knowledge and Understanding A1. A2. A3.
B. Subject-specific skills B1. B2. B3.
Teaching and Learning Methods
• Lectures where the students write information presented to them via slide show, overhead or written by the lecturer; • Lectures where the students have some printed notes/handouts and may annotate, or expand these during a spoken lecture; • Question and answer sessions during lectures or staff Office Hours;
Assessment methods
• Written examinations (Summative assessment); • Oral presentations of individual and group work; • Homework;
C. Thinking Skills C1. C2. C3. C4.
Teaching and Learning Methods
External lectures from industry or clinicians; • Feedback given to students during tutorials; • Question and answer sessions during lectures or staff Office Hours

Assessment methods

D. General and Transferable Skills (other skills relevant to employability and personal development) D1. D2.
Teaching and Learning Methods • Lectures where the students have some printed notes/handouts and may annotate, or expand these during a spoken lecture; • Lecture material placed on web-pages. • Question and answer sessions during lectures or staff Office Hours;
Assessment Methods
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11. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method

Week	Date	Topes Covered	Teaching Method	Notes
1	2018	Introduction to design methods	Oral presentation	
2	2018	Simple stresses in machine parts - Introduction (load,		

		stress, strain, Young modulus, shear stress, shear modulus) - Bearing stress - Stress-strain diagram - Working stress, Factor of Safety - Stress in composite Bars - Thermal stress - Linear and lateral strain - Poisson Ratio - Impact stress Solve problems		
3	2018	Torsional and Bending stresses in machine parts - Torsional shear stress - Shafts in series and parallel - Bending stress in straight beam - Solve problems - Principal stress and principal planes - Theories of failure under static load - Eccentric loading, Direct and bending stresses combined		Quiz 1
4	2018	Variable stresses in machine parts - Introduction, cyclic stress - Stress concentration - Theoretical stress concentration - Combined steady and variable stress - Gerber method - Goodman method - Soderberg method Solve problem		
5	2018	Pressure Vessels - Classification of		

		pressure vessels - Stresses in a Thin Cylindrical shell due to an internal pressure - Circumferential or Hoop stress - Longitudinal stress - Change in dimension of a Thin spherical shells due to an internal pressure Solve problems		
6	2018	Key and coupling - Type of keys (Sunk, Saddle, Tangent and Round keys) - Force acting on key - Effect of keyway - Solve problem Shaft coupling \ - Type of shaft coupling(Sleeve or muff, Clamp and flange coupling) Solve problem		
7	2018	Shafts - Type of shafts - Shaft subjected to twisting moment only - Shaft subjected to bending moment only - Shaft subjected to combined twisting and bending moment - Shaft subjected to fluctuating loads - Shaft subjected to axial load addition to combined Torsion and bending load Solve problem		
8	2018	Flat Belt Drives - Type of Belt Drives		

		- Belt Speed - Coefficient of friction - Velocity ratio of Belt drives - Slip of Belt - Length of open Belt - Length of cross Belt - Power transmitted By Belt - Ratio of driving tension for flat Belt drive - Centrifugal tension Solve problem		
9	2018	V-Belt Drives - Type of v-Belt Drives - Ratio of driving tension of V-Belt Drives Solve problem		
10	2018	Mid term exam		
11	2018	Spur Gear - Classification of Gear - Term used in Gear - Condition for constant velocity Ratio of gear - Design consideration for Gear Drives - Lewis Equation - Dynamic Tooth load - Static Tooth load - Wear Tooth load - Design procedure for Spur gear - Design of shaft of spur Gear Solve problem		Quiz
12	2018	Sliding Contact bearings - Classification of Bearings - Type of Sliding Contact bearings - Hydrodynamic		Quize

		lubricated Bearings Rolling contact bearings Type of rolling Contact Bearing		
13	2019	Seminar	Presentation	
14	2019	Seminar	Presentaion	
15	2019	Review		

13. Admissions	
12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	**1- Mechanical Engineering Design (McGraw-Hill Series in Mechanical Engineering) 10th Edition**

	by Richard G Budynas , Keith J Nisbett. **2- Machine Design (S.I. Units) R.S. Khurmi - J.K. Gupta.** **3- Design of Machine Elements, by: Virgil M. Faries.** **4. Machine Design, by: Black & Adams.**
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	