



<b>Module Title</b>	<b>Module Code</b>	<b>Semester (Sem 1 / Sem 2)</b>
Capstone Design II	MSDE 423	Sem 1
<b>Credits</b>	<b>Level</b>	<b>Professor and email</b>
20	6	Dong Young Jang dyjang@seoultech.ac.kr
<b>Delivery Method</b>	<b>Delivery Location</b>	
Seminar, tutorial, workshops / Project	SeoulTech, Mugung Hall	
<b>Module Synopsis</b>		
<p>This module aims to introduce students to the principles of successful engineering design and to guide students through a practical design experience. It also provides experience of undertaking a complete group design project, allowing them to understand their individual nature within a group when undertaking a significant investigation. Each member of a design group has to specify his job description and contribution to the project and perform an individual design project eventually contributing to the overall design which is brought together in Capstone III. The individual design projects should be a stand-alone design culminating in a report and presentation that covers all aspects of the design journey.</p> <p>This module is the contribution to a three part design process          Capstone Design I specifies the group project and allocates individual component projects          Capstone Design II is performed by individuals on a particular part of the overall project          Capstone Design III consolidates all the individual projects from Capstone Design II and combines them into a complete and complex Device</p>		
<b>Outline Syllabus</b>		
<p><b>Review of Writing Good Report / Excellent Presentation.</b></p> <p>An integral part of the project is the report which should:</p> <ol style="list-style-type: none"> <li>1. Describe the purpose of the investigation.</li> <li>2. Summarize the literature search and present an analysis of the findings.</li> <li>3. Describe the work done and clearly explain the logic behind the decisions and choices made.</li> <li>4. Present the results obtained.</li> <li>5. Critically review both the approach adopted and the results achieved.</li> <li>6. State any definite conclusions reached.</li> </ol> <p>A poster display shall be produced to assist the examiners in arriving at an appropriate classification of the achievement.</p> <p><b>Capstone design step 2 mainly covers followings:</b>          Final product generation for proper operation, evaluation for performance, cost, manufacture, and assembly.  <b>Each member of a design group has to specify his job description and contribution to the project in the final report.</b></p>		



### Indicative Reading:

- 1) Shigley's Mechanical Engineering Design, Richard G. Budynas and J. Keith Nisbett, 8th Edition, 2008
- 2) *Product Design and Development* by Karl T. Ulrich and Steven D. Eppinger (McGraw-Hill 2008)
- 3) Control Systems Engineering 4<sup>th</sup> Edition, Norman S. Nise, Wiley, 2003

NOTIONAL STUDENT WORKLOAD (Hours)	Hours
MODE OF DELIVERY (FT / PT / DL)	FT
Lectures	
Seminars	20
Tutorials	40
Laboratories/studios/practical	40
Directed learning	
Independent Learning	100
Work experience/fieldwork	
Other: eg formal presentation	
Total Workload 100 hours for a 10 credit module 200 hours for a 20 credit module	200

### Module Outcomes

KU1,2,3,4	Evaluate and apply unfamiliar knowledge of the scientific and mathematical principles of mechanical engineering to solve Real-World problems. Critically analyse unfamiliar interdisciplinary mechanical engineering systems. Establish and synthesise methodologies to create advanced solutions to a variety of Real-World mechanical engineering problems. Define and investigate complex interdisciplinary problems and constraints that occur in mechanical engineering design with the aid of specialist tools and the latest research.
IPSA 1,4	Apply advanced approaches to solving complex and unfamiliar real world mechanical engineering problems. Illustrate innovative solutions to complex and unfamiliar mechanical engineering problems
PVA 2,3	Critically analyse advanced solutions to complex and unfamiliar mechanical engine problems.



## MSDE Module Descriptor

	Critically reflect on interpersonal learning skills and formulate solutions to their use in a wide range of situations.

<b>Assessments</b>	<b>Assessment Type</b>	<b>Weighting %</b>	<b>Mid-Term/interim/final</b>
Course Work	Weekly Reports	10	
Course Work	Final Report/ Presentation	50	Final
Quiz			
Test			
Laboratory			
Exam			
Presentation	3 progress presentations	40	