

## MODULE DESCRIPTOR

Guidelines for completion are available<sup>1</sup> as are Red Guides on developing a new module and Delivering a module<sup>2</sup>.

<b>1. Module Code</b>	MSDE 463	<b>2. Title of new module</b>	Engineering Economics and IPR
<b>3. Subject Division</b> <i>where relevant</i>	Engineering		
<b>4. Module level</b> <i>4, 5, 6 etc.</i>	6	<b>5. Module Tutor</b>	HD Kwon
<b>6. Credit points</b> <i>10, 20,30 etc</i>	10	<b>7. Year long or semester based</b>	Semester 2
<b>8. Type of module</b> <i>eg standard, dissertation, work-based study</i> <i>A full list of module types is provided in the guidelines<sup>1</sup>.</i>	Standard		
<b>9. Location(s) of delivery</b> <i>For collaborative delivery, please state name(s) of institution(s) with country and start month(s) for each. A full list is available on the SITS help file in eLP</i>	SeoulTech, Korea, March		

## MODULE DESCRIPTIONS

- 10. Synopsis of module** (SITS Module Descriptor Sequence 0001)  
*A brief overview of aims, learning outcomes, learning, teaching, assessment, & feedback methods, and rationale*

This module aims to provide the student with an introduction to economic decision making and intellectual property right. This covers the basics of economic analysis from an engineering perspective, dealing with the principles and methods for analyzing the economic feasibility of alternatives and for making selection decisions among them.

Concepts, filing processes and search methods on intellectual properties such as patent, utility model, design and trade mark are delivered for better protection of IPRs and use in research and development.

Assessment is done with final examination and term project during the semester.

- 11. Indicative reading list or other learning resources** (SITS 0002)

<b>1. Recommendations for purchase by students</b>
N/A

<sup>1</sup> <http://northumbria.ac.uk/sd/central/ar/qualitysupport/approval/forms/>

<sup>2</sup> <http://northumbria.ac.uk/sd/central/library/marcel/redguides/browse/?view=Standard>

**2. Books**

- 1) Chan S. Park, Fundamentals of Engineering Economics, 2<sup>nd</sup> ed. Prentice Hall, 2008
- 2) Chan S. Park, Contemporary Engineering Economics, 4<sup>th</sup> ed. Pearson Education Korea, 2007
- 3) L.T. Blank and A.J. Tarquin, Engineering Economy, 7<sup>th</sup> ed. McGraw Hill, 2012

**3. Journal Articles**

N/A

**4. Journals and Newspaper Titles**

N/A

**5. Databases and Websites**

www.kipo.go.kr  
 www.patent.go.kr  
 www.kipris.or.kr  
 http://patft.uspto.gov  
 http://worldwide.espacenet.com

**6. Any Other Resources**

N/A

**12. Outline syllabus (SITS 0003)**

*A list of module contents*

**Basic Concepts and Terminology**

Interest rate and rate of return. Factors: how time and interest affect money. Time value of money and discounted cash flows. Nominal and effective interest rates.

**Analyzing a Project**

Present worth and future worth, Equivalent annual worth, Internal rate of return, Benefit/cost ratios, and other measures.

**Evaluating Alternatives**

Formulating mutually exclusive alternatives.  
 Methods: Present worth analysis, Annual worth analysis, Rate of return analysis, Benefit cost analysis, Breakeven analysis.  
 Comparing alternatives by different evaluation methods.

**Understanding on Intellectual Property Right**

Concepts on intellectual property such as patent, utility model, design and trade mark  
 Patent application and filing process  
 Documentation and writing a patent specification

**IPR Management**

Searching method on patents  
 Patent analysis technique

Understanding a patent map  
Management method of patent dispute

**13. Aims of module (SITS 0004)**

*Broad statement of educational intent and overall purpose of module*

This module aims to provide students with frameworks, concepts, and tools from the disciplines of economics and finance, so that the students should be able to evaluate and identify which alternative should be selected on the basis of economic criteria.  
Based on understanding for intellectual properties, it should be understood patent creation, patent applications, patent investigation, patent applications methods and procedures.

**14. Learning outcomes (SITS 0005)**

*State what expected to know and/or be able to do at end of module*

Upon completion of the module the student will be able to:

1. Apply mathematical methods relevant to the Engineering subjects covered. (A2)
2. Organize companies and their business practices; finance, law, marketing and quality. (A6)
3. Recognize business opportunities and undertake technical and commercial risk evaluations. (B5)
4. Manipulate and sort data and present results in the most appropriate way. (D1)

**15. Pre-requisite(s) (SITS 0006)**

*Any module which must already have been taken at a lower level, or any stipulated level of prior knowledge required*

None

**16. Co-requisite(s) (SITS 0007)**

*Modules at this level which must be taken with this module*

None

**17. Distance learning delivery (SITS 0008)**

*If the module is offered (wholly or in part) by distance learning, please give detail of delivery arrangements and the specific resources required e.g. materials, communication facilities, hardware, software etc.*

None

**18. Learning and teaching strategy (SITS Module Descriptor Sequence 0009)**

The module consists of a number of three hour/week lectures over the semester. The lectures provide students with basic concepts and tools from the discipline of economics and IPR, while homework assignments are given in the form of problem sets to develop their application and calculation skills.  
Term project is used for formative assessment purposes and is set to cover a wide range of the content covered in the lecture. It should be submitted by the start of the class on the due date.

**19. Assessment and feedback strategy (SITS Module Descriptor Sequence 0010)**

Please provide details of assessment (formative and summative) and indicate how students will be provided with feedback on their performance. (A breakdown of summative tasks is also provided in section 23.) If the module or an assessment component is exempt from the Anonymous Marking Policy please indicate this below.

<p>a. Summative <u>assessment and rationale for tasks</u>                  The final exam (70%) will cover all the theoretical material and aspects of learning from the lectures and provide students with tests of their comprehensive ability to logically analyse a problem and develop a solution.                  Term project (30%) on IPR is provided the students for assessing the capability for IP applying, searching and analysis.</p> <p>b. Additional <u>formative</u> assessment – detail of process and rationale</p> <p>c. Indication of how students will get <u>feedback</u> and how this will support their learning                  The students receive verbal / written (as appropriate) feedback on the lecture. Verbal feedback will be provided during the presentation sessions on IP project. Examination feedback will be provided following the normal processes to show generically where the cohort has a strong or a weaker answer to the examination.</p>
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**20. Implications for Choice** (SITS Module Descriptor Sequence 0011)

Possible follow-on modules, or exclusions, or modules which require this one as a pre-requisite

None
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**21. Notional Student Workload (NSW) for each mode of delivery**

(SITS Module Descriptor Sequence 0012)

<i>Complete a separate table where the distribution of NSW differs for a particular delivery pattern - Mode of Delivery FT</i>			
Activity type*	Hours	KIS category	KIS category hours
Lecture	45	Scheduled	
Seminar			
Tutorial			
Project Supervision			
Demonstration			
Practical classes and workshops			
Supervised time in studio/ workshop			
Fieldwork			
External visits			
Work based learning			
Guided independent study	55	Independent	
Placement		Placement	
Year abroad			
<b>Total workload</b> <i>200 hours for 20 credit module, 100 for 10 credit module etc.)</i>	100		

**SUMMATIVE ASSESSMENT**

**22. Form of Reassessment**

*Either synoptic or non-synoptic reassessment*

<b>Synoptic reassessment</b> <i>One form of reassessment that tests all module learning outcomes</i>	<b>Y/N</b>
	Y
<b>Non-synoptic reassessment</b> <i>Where module referred overall, individual failed components of assessment are reassessed</i>	

**23. Component Assessment**

*To be completed for each component of assessment*

Sequence 001, 002 etc.	Activity type <sup>3</sup> <i>indicate ONE of the following types:</i> <b>AO</b> Attendance only <b>CP</b> Clinical Placement <b>CW</b> Coursework <b>EXAM</b> <b>PRE</b> Presentation	Brief description of assessment <i>e.g. type/length of exam, type/word limit of coursework</i>	Weighting % or Pass/Fail (for grade only components) <i>Note: % weightings should add up to 100% for module overall</i>	Final assessment Y/N
001	EXAM	Final formal examination (2 hours)	70	Y
002	PRE / CW	Term project / semester long	30	

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**24. Date of SLE Approval**

**25. Subject code**

This ensures that the correct area receives appropriate funding and should be completed in consultation with the School Registrar or nominee. Advice can also be sought from Financial Planning.

**26. Module mark scheme assigned<sup>4</sup>**

<b>27. Component mark scheme assigned<sup>3</sup></b>	<ul style="list-style-type: none"> <li>For each component listed in section 23 indicate the mark scheme attached.</li> <li><b>Note that for synoptic mark schemes (ie MOD1, MOD3 and M50SY only) an additional component should be entered for the reassessment with sequence 900 and assessment type SYN.</b></li> </ul>	
	<b>001</b>	

<b>28. Date of entry onto SITS</b>	
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<sup>3</sup> For KIS reporting, CP and PRE will be aggregated together as 'Practical' assessment types

<sup>4</sup>A list of marking schemes (module and component) can be accessed from <http://northumbria.ac.uk/sd/central/ar/qualitysupport/approval/forms/>

29.	<b>LOG OF CHANGES POST APPROVAL</b> <i>Please indicate any changes to the approved module descriptor from 2012/13 onwards</i>			
	<b>Section No.</b>	<b>Brief description of change</b>	<b>Date of approval</b>	<b>Semester and year of first implementation</b>