

MODULE DESCRIPTOR

Guidelines for completion are available¹ as are Red Guides on Developing a new module and Delivering a module².

1. Module Code	MSDE 231	2. Title of new module	Introduction to Manufacturing
3. Subject Division <i>where relevant</i>	Engineering		
4. Module level <i>4, 5, 6 etc.</i>	4	5. Module Tutor	Anthony Johnson
6. Credit points <i>10, 20,30 etc</i>	10	7. Year long or semester based	Semester
8. Type of module <i>eg standard, dissertation, work-based study</i> <i>A full list of module types is provided in the guidelines¹.</i>	Standard		
9. Location(s) of delivery <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, September		

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

The characteristics of the whole manufacturing process methodologies such as machining, casting, metal forming, and rapid prototyping are covered, along with the related processes and techniques such as surface finishing, electronic fabrication, automation and integration of the production systems.

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

1. Recommendations for purchase by students

N/A

2. Books

1. Fundamentals of Modern Manufacturing (Materials, Processes, and Systems)
The 4th Edition by Mikell P. Groover, 2012.

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

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

2. Manufacturing Engineering and Technology S. Kalpacjian & SR Schmid: Pearson 2013

3. Journal Articles

N/A

4. Journals and Newspaper Titles

N/A

5. Databases and Websites

N/A

6. Any Other Resources

N/A

12. Outline syllabus (SITS 0003)

A list of module contents

Material Properties and Product Attributes

Nature of Materials. Mechanical Properties of Materials. Physical Properties of Materials. Dimensions, Tolerances, and Surfaces

Engineering Plastics and Applications

Engineering Materials Overview

Metals. Ceramics

Solidification Processes Overview

Metal Casting Processes. Shaping Processes for Plastics

Particulate Processing of Metals and Ceramics Overview

Power Metallurgy. Processing of Ceramics and Cermets

Metal Forming and Sheet Metalworking

Metal Forming. Bulk Deformation Processes in Metal Working. Sheet Metalworking

Introduction to Fabrication Methods

Welding methods, introduction to laser cutting and water jet cutting

Introduction to Rapid Prototyping

Stereo lithography. Laminated Object Manufacturing. 3D Printing

Material Removal Processes

Theory of Metal Machining. Machining Operations and Machine Tools

Case study of an Engineering Assembly

13. Aims of module (SITS 0004)

Broad statement of educational intent and overall purpose of module

1. To provide a fundamental understanding of basic engineering materials and their selection
2. To provide an understanding of the manufacturing processes available to the engineer in manufacturing industry, and to consider the factors influencing process selection.

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. understand Manufacturing process Technology and Manufacturing Systems.(A1)
2. use the principles of design combined with manufacturing techniques to develop engineering products using related manufacturing processes.(A5)
3. select and apply scientific principles to model Manufacturing processes (B2)
4. understand the requirements of the design process and allocate materials and manufacturing processes to achieve a satisfactory product (B5)

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)

Major manufacturing processes such as casting, forming, prototyping and cutting technologies are delivered with lecture-type of education. Case studies and Videos are used to enhance practical understanding. Visit to exhibitions for machine tools and automation is encouraged to have actual information on industries. Research related to manufacturing technologies, and the companies that employ such technologies can be presented. During presentation period, verbal feedback comments will be made by the assessor.

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.)

<p>a. Summative <u>assessment and rationale for tasks</u></p> <p>The final exam worth 60% provides students to test the understanding the important knowledge on manufacturing technology and application skills. Ratio for presentation is 40%. New technical trends, industries and market situation are researched and surveyed in group of students. They are expected to develop team work and presentation skills.</p> <p>b. Additional <u>formative</u> assessment – detail of process and rationale</p> <p>Formative assessment will be via verbal feedback during <u>presentations</u></p> <p>c. indication of how students will get <u>feedback</u> and how this will support their learning</p> <p>Feedback will be given in the verbal and written form during the seminar periods, and verbal comments on exam question solutions.</p>

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

No Pre--Requisites

21. Notional Student Workload (NSW) for each mode of delivery

(SITS Module Descriptor Sequence 0012)

The total hours should be 100 for a 10 credit module, 200 for a 20 credit module etc. Note that time taken to undertake assessments should be included in any category where appropriate. Time in formal examinations or tests should be shown separately.

Mode of delivery (eg FT, PT, DL) <i>Please complete a separate column where the distribution of notional student workload differs for a particular delivery pattern</i>	FT			
Lectures	40			
Seminars	20			
Tutorials				
Laboratory/studio/practical work				
Directed learning	5			
Independent learning	30			
Placement/work experience learning/fieldwork				
Duration of examination(s)/test(s)	5			
Other (please give details of other hours indicated)				
Total workload <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

<p>Synoptic reassessment <i>One form of reassessment that tests all module learning outcomes</i></p>	100	Y/N
		Y

Non-synoptic reassessment <i>Where module referred overall, individual failed components of assessment are reassessed</i>	
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23. Component Assessment

To be completed for each component of assessment

Sequence <i>001, 002 etc.</i>	Assessment type <i>indicate ONE of the following types: AO Attendance only CP Clinical Placement CW Coursework EXAM PRE Presentation</i>	Brief description of assessment <i>e.g. type/length of exam, type/word limit of coursework</i>	Weighting <i>% or Pass/Fail (for grade only components) Note: % weightings should add up to 100% for module overall</i>	Final assessment Y/N
001	CW	Seminars(Continuous Assessment)	40	
002	EXAM	Final formal examination /2hours	60	Y

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24. Date of SLT 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 assigned³

27.	Component mark scheme assigned³	
	<ul style="list-style-type: none"> For each component listed in section 23 indicate the mark scheme attached. 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. 	
	001	

28.	Date of entry onto SITS	
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³A list of marking schemes (module and component) can be accessed from <http://northumbria.ac.uk/sd/central/ar/qualitysupport/approval/forms/>