



OMNES
EDUCATION
LONDON SCHOOL

PROGRAMME DESCRIPTION & MODULE HANDBOOKS

YEAR 3 ENGINEERING

LONDON



Programme Description

Name of the programme: Y3 Engineering

Key information:

Dates: 5 September to 6 December 2024 (exams included)

Duration: 13 weeks (holidays: 26 October to 3 November 2024)

Level: Level 6 (Undergraduate Year 3)

Total number of teaching hours: 187.5

ECTS: 30

Prerequisites: Completion of Level 5/Undergraduate Year 2 of Engineering studies

Examination Board Date: 25 January 2025*

Resit Exams Dates: 26 February to 1 March 2025 (online / apart from Maths)*

Resit Examination Board Date: 20 March 2025*

**The forecasted dates of the Examination Boards and the Resit Exams are indicated in the programme description, although they are subject to change based on circumstances*

Programme Lead Name: Dr John Balasuriya

Programme Advisor Name, Title and Institution: Fabienne Coudray, Dean of Undergraduate Programmes, ECE Paris

Aims of the Programme:

- The focus in this semester of Year 3 Undergraduate Studies in Engineering aims to equip students with a strong foundation in computing subjects such as computational thinking, Application Development, and Artificial Intelligence. The objective is to develop robust problem-solving abilities, high competency, and a professional approach in software development.
- The programme also aims to enhance employability skills by including the interdisciplinary topics for future managers: leadership, written and oral communication, finance and entrepreneurship along with operational mathematics.

Programme Benefits:

This programme offers students:

- A distinctive computer-focused curriculum – students engage in experiential, experimental, and collaborative learning using a variety of computer languages and mathematical tools.
- An applied experience – students work on hands-on real life projects developing all the skills needed in problem solving.
- An introduction to management – students obtain fundamental knowledge and abilities in leadership, finance, and entrepreneurship.
- An enhancement of employability skills – students learn and experience a wide range of skills that employers are looking for (teamwork, communication, critical reflexion, intellectual curiosity, and organisation).
- A study abroad experience – students develop their autonomy by living in a foreign country.

Learning Outcomes:

Knowledge

By the end of this programme, students will have demonstrated:

1. A broad and in-depth knowledge of problem-solving techniques using quantitative methods and/or computer programming.
2. A critical understanding of essential concepts, principles, and practices of management and entrepreneurship theories.

Skills

By the end of this programme, students will be able to:

3. Structure arguments based on detailed subject knowledge to justify the selection and use of tools and techniques, recognising their limits and their societal implications.
4. Demonstrate the ability to effectively communicate a wide range of ideas orally and in writing, producing organised work with rigorous, accurate and evidence-based arguments.
5. Demonstrate and assess critical thinking skills, particularly in the evaluation of results of computer programs or simulations.
6. Apply a sophisticated knowledge of quantitative methods and computer programming to solve real-world engineering problems.

Values

By the end of this programme, students will have demonstrated a commitment to:

7. Recognising, respecting, and applying the five values of OELS, particularly in the context of a professional engineering environment.

Programme Structure:

ACADEMIC PROGRAMME <i>(subject to change)</i>	Hours	ECTS
Artificial Intelligence		
Artificial Intelligence	49.5	8
Artificial Intelligence Office Hours	12	-
Programming		
Application Development	40.5	6
Application Development Office Hours	8	-
Mathematics		
Operational Mathematical Research	36	6
Operational Mathematical Research Support	8	-
Management		
Management Theory & Leadership	13.5	2
Start-up for Engineers	12	2
Finance for Engineers	12	2
Language & Communication		
Advanced Integrated English	12	2
Public Speaking & Key Soft Skills	13.5	2
Masterclasses & Visits <i>(depending on availability)</i>		
Optional English Support	12	0
Guest Speaker(s): Dr Andreu Oliver / Tobii Eye Trackers	TBC	-

Approach to Learning:

The teaching contact hours will vary based on the level of study for each module. In a typical week, contact hours will include small to large group teaching and tutorials. The number of contact hours may vary for each module.

In addition to the teaching hours, students are expected to undertake significant self-directed study every week depending on the requirements of each module. Students are expected to read and watch assigned material (text, articles, podcasts, videos...) independently, attend all classes, workshops and activities in their schedule (unless noted "optional"), actively participate in group discussions, and where appropriate, work in collaboration with their peers for formative and summative assessments.

During the term, students will be benefited from our application-driven teaching approach with access to recent teaching tools, using learning techniques such as flipped classroom where students will prepare in advance by researching a particular topic or challenge.

Assessments:

During the semester, students will be assessed via a range of methods depending on the module. The assessment methods include assignments, exams, group discussions, essays, group projects, presentations, etc.

Module Handbook

Module title: Artificial Intelligence

Lecturer's name: Dr John Balasuriya

Email address: lbalasuriya@omnesintervenant.com

Contact hours: 48 hours

Assessment hours: Five AI coding assessments in the PC lab and one project demo. Schedule of assessments can be found in the syllabus content section of this document.

Independent study hours expected: 96 hours

ECTS credits: 8 ECTS

Programme level: Level 6 = Year 3 Undergraduate

Prerequisites: Basic understanding of mathematics, statistics and programming.

Aims:

In this Artificial Intelligence module we cover six different areas of AI, focusing on the practical application of Artificial Intelligence by coding solutions to difficult real-world problems. The module also includes an Artificial Intelligence project where students will build a working AI system to solve a classical AI problem such as face recognition. Matlab will be used as the programming language in this module since Matlab is a compact, easy to learn yet powerful 4th generation language used by engineers which many of our students have already used prior to this Artificial Intelligence module.

Learning outcomes:

By the end of this module, students will be able to:

Knowledge

1. Acquire the foundational knowledge of Artificial Intelligence theories necessary to develop solutions to classical AI problems.
2. Gain the theoretical understanding of Computer Vision and Image Processing theory, algorithms and approaches required to independently code solutions to real-world problems.
3. Develop a deep understanding of Machine Learning theories and approaches to critically select and implement them in solving real-world problems.
4. Understand the theories and methodologies of Natural Language Processing and Information Retrieval needed to independently build a search engine.

5. Acquire the necessary knowledge of Probability theory and algorithms to code solutions for real-world object tracking problems.
6. Develop an in-depth understanding of Artificial Intelligence theories and methods required to build a system capable of solving complex real-world AI problems, such as face recognition.

Skills

7. Use a 4th generation programming language to develop solutions to Artificial Intelligence problems.

Values

8. Appreciate the enormous impact of Artificial Intelligence on the future of humanity

Syllabus content:

Sessions	Topic/Knowledge	Skills	LOs
Session 1	Introduction to AI	Introduction and Philosophy	1, 7, 8
Session 2	Introduction to AI	Basic Concepts	1, 7, 8
Session 3	Introduction to AI	Programming Basics	1, 7
Session 4	Introduction to AI	History of AI	1, 7, 8
Session 5	Introduction to AI	Modern Areas of AI	1, 7
Session 6 (B06 PC lab)	Assessment/Computer Vision	Introduction	2, 6, 7
Session 7	Computer Vision	Image Processing	2, 6, 7
Session 8	Computer Vision	Registration	2, 6, 7
Session 9	Computer Vision	Convolutions	2, 6, 7
Session 10	Computer Vision	Convolutions	2, 6, 7
Session 11	Computer Vision	Fourier Transform & Robotics	2, 6, 7
Session 12 (B06 PC lab)	Assessment / Machine Learning	Introduction	3, 6, 7
Session 13	Machine Learning	Dimensionality Reduction	3, 6, 7
Session 14	Machine Learning	Principal Component Analysis	3, 6, 7
Session 15	Machine Learning	Principal Component Analysis	3, 6, 7
Session 16	Machine Learning	Independent Component Analysis and Clustering	3, 6, 7
Session 17	Machine Learning	Deep Learning	3, 6, 7
Session 18 (B06 PC lab)	Assessment / Natural Language Processing	Introduction	4, 7
Session 19	Natural Language Processing	Parts of Speech tagging and Information Retrieval	4, 7
Session 20	Natural Language Processing	Search Engines	4, 7
Session 21	Natural Language Processing	Statistical Properties of Text	4, 7
Session 22	Natural Language Processing	Complex search engine queries	4, 7
Session 23	Problem Solving Algorithms	Intelligent Agents	1, 6, 7
Session 24 (B06 PC lab)	Assessment / Problem Solving Algorithms	Intelligent Agents	1, 7
Session 25	Problem Solving Algorithms	Intelligent Agents	1, 5, 7
Session 26	Problem Solving Algorithms	Simulation & Swarm Intelligence	1,5, 7
Session 27	Probability	Probabilistic Inference	5, 7
Session 28	Probability	Kalman Filter	5, 7

Session 29	Probability	Advanced Object Tracking Problems	5, 6, 7
Session 30 (B06 PC lab)	Assessment / Probability	AI Project demo preparation	5, 6, 7
Session 31	AI Project	Project Demo	1, 2, 3, 6, 7, 8
Session 32	AI Project	Project Demo	1, 2, 3, 6, 7, 8
Office Hours	AI Project	AI Project	1, 2, 3, 6, 7, 8

Office hours are provided to supervise students in their AI project. During these sessions the students will be helped by discussing and comparing different approaches to the AI project and helping debug code.

Teaching and Learning Strategies:

A practical hands-on teaching and learning strategy has been adopted in this Artificial Intelligence module. Since this module is for engineering students, rather than only learning Artificial Intelligence theory and having written assessments on paper, we focus on getting the students to implement AI theory to solve real-world problems as soon as possible. All evaluations are AI coding assessments, where students implement the theory they've learnt to solve real problems.

Student work on their laptop during lectures. Immediately after a new Artificial Intelligence topic is introduced and explained, the students will implement working systems using this new AI approach. Most often students will be coding AI solutions just minutes after learning new AI theory so we enhance their understanding of theory with immediate active hands-on application.

Lecture slides that are projected on a screen will be used to explain the AI theory. Students then implement this theory by independently coding algorithms to solve problems. During these practical exercises, students are provided with peer and lecturer feedback and support to help everyone achieve working AI solutions. The lecturer may finally code and demonstrate solutions while sharing their screen on the projector to help weaker students who were not able to independently solve a problem. The lecturer's solution is often presented in stages to encourage students to work independently as much as possible.

For complex problems, occasional code samples are shared with students. Boostcamp is used as the virtual learning environment to provide access to this code as well as the lecture slides and data sets.

The following structural pedagogical approach taken for teaching Artificial Intelligence concepts in this module:

- Presentation: AI theory and background will be explained in lecture slides. Working AI solutions may be demonstrated to the students by the lecturer.

- Practical exercises: Students immediately apply AI theory to solve a given problem by coding solutions. Students are encouraged to become increasingly independent when implementing solutions to these exercises, but are supported by peers and the lecturer.
- Homework: After each lecture students are given homework including reviewing and completing code they implemented during the lecture and potentially also expanding their learning by conducting independent research in areas outside the module syllabus.

Formative and Summative Assessment Strategies:

Formative Assessments:

Formative assessments consist of practical exercises conducted during lectures. Students independently code solutions to these problems, with occasional help and feedback from peers and the lecturer. Each AI lecture will contain approximately six formative assessments. Students demonstrate their solutions to each other and the lecturer for verbal feedback. The lecturer finally codes a working solution to help any students who were not able to independently create a working solution.

Summative Assessments:

This module covers six different areas of Artificial Intelligence as indicated in Learning Outcomes 1-6. Each of these Learning Outcomes is individually tested with a separate AI coding assessment so students are not completely overwhelmed with completely different AI theories and algorithms. Students will need to critically evaluate different approaches, select the appropriate method and implement this as MATLAB code during the assessment to process the provided data and solve an AI problem.

Students receive individual assessment grades after the last group completes the assessment. This is often at most one to two weeks after an AI coding assessment.

In addition to the coding assessments, the students are divided into pairs to complete an AI project during this course. The project tends to be a classical AI problem such as face recognition and the students are free to use any AI theoretical approach to solve the problem. Projects are objectively evaluated during an AI Project Demo at the end of this course. The evaluation consists of calculating the recognition rate of each system and studying the performance characteristics of the system.

Marking Scheme:

Marks are provided to the students out of 20, complying with the French grading system used at their home schools. As a general guidance, the following marking scheme is used to grade the students' AI coding assessments:

Missing function or script descriptions and input/output descriptions	-2/20
Submitted code has exceptions or does not execute correctly	-8/20
Other individual assessment specific bugs in submitted code causing an error in the computed output.	-10/20

List of summative assessments.

Assessment schedule (lecture number)	Name of assessment	Format of assessment	OELS Invigilation Needed?	Duration	Weighting	LOs
6	Introduction to Artificial Intelligence	Individual coding assessment in PC lab	N	~40 minutes	15%	1, 7
12	Computer Vision	Individual coding assessment in PC lab	N	~40 minutes	15%	2, 7
18	Machine Learning	Individual coding assessment in PC lab	N	~40 minutes	15%	3, 7
24	Natural Language Processing	Individual coding assessment in PC lab	N	~40 minutes	15%	4, 7
30	Probability	Individual coding assessment in PC lab	N	~40 minutes	15%	5, 7
31-32	AI Project	Demonstration (in pairs) of working system	N	~15 minutes	25%	1, 2, 3, 6, 7
Resit		Individual online (MS Teams) AI Project demo with a higher recognition rate requirements	N	1 hour	100%	1, 2, 3, 6, 7

Feedback Strategies:

The following approach is utilised for providing feedback:

1. Verbal feedback: Verbal feedback is continually provided by peers and the lecturer during the six formative assessments in each AI lecture conducted in this module. Lecturer guidance is provided to optimise and debug code, understand AI theory, improve problem solving skills and develop good programming practices. Students thereby improve in their ability to independently solve AI problems as they progress through the semester.
2. Written feedback: Text feedback of the errors in a student's assessment code are provided in real-time during the assessment itself by the Matlab programming environment. Students are referred to the marking scheme to understand their marks. After each summative assessments is graded, communal written feedback on the theoretical, algorithmic and syntax errors found in coding assessments are posted in lecture slides on Boostcamp.

Resit:

Students who fail the summative assessments are offered a resit the opportunity where they repeat their AI Project with higher face recognition rate requirements. AI Project face recognition systems are demonstrated and discussed online over MS Teams.

Reading Lists:

Russell, S. J. & Norvig, P. (2020) *Artificial Intelligence: A Modern Approach*. New Jersey: Prentice Hall

Mackay, D. J. C. (2003) *Information Theory, Inference and Learning Algorithms*. Cambridge: Cambridge University Press

Hofstadter, D. (1999) *Godel, Escher, Bach: An Eternal Golden Braid*. New York: Basic Books

Ballard D. H. & Brown, C. M. (1982). *Computer Vision*. New Jersey: Prentice Hall.

Gonzalez, R. C. & Woods, R. E. (2008). *Digital Image Processing*. New Jersey: Prentice Hall

Mitchell, T. M. (1997) *Machine Learning*. New York: McGraw Hill

Manning, C. & Schutze, H. (1999) *Foundations of Statistical Natural Language Processing*. Cambridge, MA: MIT Press

Van Rijsbergen, C. J. (1975) *Information Retrieval*. Oxford: Butterworth-Heinemann

Prerequisites:

1. Basic understanding of matrix operations, algebra, statistics and probability (Mandatory)
2. Basic ability to code in any computer programming language (Mandatory)
3. Interest in Artificial Intelligence and general awareness of the impact of AI (Recommended)

Module Handbook

Module title: Application Development

Lecturer's name: Maithili Paranjape

Email address: mparanjape@omnesintervenant.com

Contact hours: 40,5 hrs

Assessment hours:

1.5 hrs midterm exam on computer after week 7 +

Final Project to be submitted at the end of the term: Approx. 5 weeks

Independent study hours expected: 78 hrs

ECTS credits: 6

Programme level: 6

Prerequisites: N/A

Prerequisite: Understanding of HTML,CSS and JavaScript

Aims:

This module introduces web and mobile application development frameworks for efficient, component-based application development. The module focuses on effective use of technological tools to build flexible and reusable user interface (UI) solutions. It aims to equip the students with the recent and advanced web and mobile application development skills, required to implement professional applications during their work life.

Learning outcomes:

On successful completion of this module, students will be able to:

Knowledge

1. Apply the core knowledge of web programming notions.
2. Develop efficient and reusable solutions to real-time problems using a range of web programming tools
3. Present in-depth understanding of the reliance and connectivity among the application tiers.

Skills

4. Exhibit the effective use of web programming tools for application development.
5. Select the appropriate graphical and non-graphical tools while developing the solution to a given problem
6. Reflect on the development of the application and identify the interdependence of the procedures.
7. Evaluate the available software components and recommend the suitable combination of components for a given application.

Values

8. Develop methodical approach to problem solving

Syllabus content:

Weeks	Topic/Knowledge	Skills	LOs
1	Getting JS ready	Using programming components	1,2
2	Introduction to React and its component-based architecture	Using web programming concepts	1,2
3	Components and props with conditional rendering	Using web programming concepts	1,2,4
4	State in react components and rendering lists	Using web programming concepts	1,2,4,5,6
5	Introduction to agile methodology	Applying methodical approach to problem solving	8
6	Introduction to react native and its components	Using mobile programming concepts Syndicate web and mobile programming concepts for developing application	2,4,6
7	Creating react native mobile application and adding navigation	Use graphical tools for effective use of the application Interdependence of the procedures	3,4,5
8	State and props in react native	Use graphical tools for effective use of the application Interdependence of the procedures	3,4,5
9	Working with react native forms and event handling	Effective use of available programming tools	6,7

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10	Project Guidelines – Application of Agile methodology	Problem solving with a methodical approach, Choosing the appropriate tools for project	7,8
11	Project Guidelines – Application of Agile methodology	Problem solving with a methodical approach, Choosing the appropriate tools for project	7,8
12	Project demonstrations	Presentation	6,7

Teaching and Learning Strategies:

Teaching and learning strategies have been designed based on the specific requirements of this module. Each topic will be taught through lecture and lab session. PowerPoint presentations will be used to explain the theory and demonstrate the programs. For complex concepts, code samples are written using the application by discussing various approaches to problem solving.

BoostCamp is to be used as the virtual learning environment, which will provide access to lecture slides, tutorials, and homework. Students will be expected to submit the work on Boostcamp. Following is the structural approach for the module:

- Presentation: The theory of each topic will be explained and demonstrated though the PowerPoint slides. The slides will include examples elaborating on how to use each concept in the programming context.
- Classroom discussions: Students will be asked several questions based on the current topic to firm up their understanding. Small programming tasks will also be assigned during the session. Based on the questions and programming tasks, students will be encouraged to discuss the use of programming tools
- Reflective exercises: Each weekly topic will be associated with a range of programming questions. During the tutorials, students are expected to write code for the given questions. Students will be encouraged to communicate with the lecturer and their peers to improve their understanding of the topic.
- Homework: Every week, few questions from the tutorial will be assigned as the homework

Formative and Summative Assessment Strategies:

Formative Assessments:

Formative assessments will primarily consist of weekly tutorials. Each topic in the syllabus is linked to 8-10 programming questions, to enhance the understanding of the topic. Students are expected to attempt writing programs to derive the solution to the problem. At the beginning of the tutorial, the approach to solve the problem, possible choice of programming

tools will be discussed. Students will be expected to demonstrate every completed tutorial to the lecturer. Feedback will be provided while students are attempting to write the code for the given problem

Summative Assessments:

Final Grade distribution

- 1. Midterm Examination (50%)**
- 2. Final Project (50%)**

The midterm examination is designed to evaluate the student’s ability to use the react components efficiently and effectively for web applications. The grades will be assigned based on the accuracy of the code, choice of components, percentage of functionalities implemented.

The final project will be grades based on the implementation of requirements specified in the project specifications. Organization of work, application of logic and use of programming tools to enhance the quality of application, dynamicity of the application - will be the primary factors to be considered during the evaluation of the submitted work.

Following will be the schedule of summative assessments.

Assessment Schedule :Week	Name of assessment	Format of assessment	OELS Invigilation Needed ? Y/N	Duration if exam	Contribution to final grade	LOs
7	Midterm Examination	PC lab exam with 2-3 questions having sub sections. Questions will be based on the syllabus covered until week 6. Students will be expected to write the program/s on the computer for the given	Y	1.5 hrs	50%	1,2,3,4

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		set of problems.				
Final session	Final Project	Mobile application development	N		50%	5,6,7,8
Resit Information	Viva based on react and react native	Oral Exam on MS Teams with 4-5 questions	N	Teams Presentation – 15 mins	100%	ALL

Feedback Strategies:

Following approach will be observed for providing feedback:

1. Verbal feedback: Verbal feedback will be provided every week during the lab sessions. As the students work on the tutorial questions, guidance is provided to resolve the errors, understand the cause of the errors, develop logic development abilities, and adapt professional programming practices. This feedback strategy has been refined over the years to support the students to boost their programming skills as they progress through the semester. Students are also encouraged to communicate with their peers during the lab session. Comparing the logical approach, identifying the common mistakes are the supporting activities achieved through communication with peers.
2. Written feedback: Detailed written feedback is given on the midterm exam script for every student, within 3 weeks after the exam. The feedback will explain the logical and syntactical errors. Further guidance will be given if the student approaches the lecturer with any specific questions about the exam script.

Reading Lists:

Eve Porcello, A. B., 2020. *Learning React, 2e: Modern Patterns for Developing React Apps*. 2nd ed. :O'Reilly.

Hartl, M., 2022. *Learn Enough JavaScript to Be Dangerous: Write Programs, Publish Packages, and Develop Interactive Websites with JavaScript: A Tutorial Introduction to Programming with JavaScript*. 1st ed. s.l.:Addison-Wesley Professional.

Kuttig, A. B., 2022. *Professional React Native: Expert techniques and solutions for building high-quality, cross-platform, production-ready apps*. 1st ed. s.l.: Packt Publishing.

Osmani, A., 2023. *Learning JavaScript Design Patterns: A JavaScript and React Developer's Guide*. 2nd ed. s.l.:Oreilly.



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Schwarz Müller, M., 2023. *React Key Concepts: Consolidate your knowledge of React's core features*.
1st ed. s.l.:Packt Publishing.

Prerequisite:

Mandatory:

Dynamic web programming with HTML, CSS and JavaScript

Module Handbook

Module title: Operational Mathematical Research

Lecturer's name: Bruno Papadacci

Lecturer's email address: bpapadacci@omnesintervenant.com

Contact hours: 36 hours

Assessment hours: 2 hours for mid-term exam after session 15

+2 hours for final exam after session 24: both exams to be invigilated by external invigilators

Independent study hours expected: 72 hours

ECTS credits: 6 ECTS

Programme level: Level 6 = Year 3 Undergraduate or Level 7 = Master, depending on previous studies

Aims:

This module aims to introduce to students some of the key models in Operational Research. Students will employ various mathematical approaches to solve problems with applications in, inter alia, production planning, inventory management, transport, finance, infrastructure, and managerial decision making.

Learning Outcomes (LOs):

By the end of this module, students will be able to:

Knowledge:

1. Explain and discuss some OR technics: Simplex method, Differential calculus, game theory...

Skills

2. Apply the Simplex method to Linear Programming problems of 1 to 3 variables with 1 to 3 constraints.
3. Apply methods of optimization to problem of 1 to 2 variables without constraint or with constraint (Lagrangian multiplier)
4. Apply forecasting methods in industrial contexts
5. Identify and formulate an optimisation problem with or without constraint in a mathematically appropriate way.
6. Reflect and analyze the results of the result of a calculation done by a student or a software to draw conclusion about managerial decision-making.

Values

7. Explain to managers, in mathematical and non-mathematical terms the technics and the solutions to optimization problems

Syllabus Content:

Sessions	Topic/Knowledge	Skills	LOs
Session 1	Introduction to the course, to the subject (OR a first approach) presentation of the course expectations	Identifying the industry sector impacted by OR	5
Session 2	Formulating a problem	Identifying relevant information and modeling concrete situations	5
Session 3	LP: The Simplex method	Understanding the Simplex methods	(1)
Session 4	LP: The Simplex method (in practice)	Applying the simplex methods	1,2
Session 5	LP: The Simplex method (in practice)	Applying the simplex methods	1,2
Session 6	LP: The Dual	Understanding and using the dual problem	1,2
Session 7	LP: Sensitivity analysis	Analyzing the results of the simplex method	1,2,6
Session 8	LP: Software Analyze	Analyzing the results of the simplex method	1,2,6
Session 9	Non Linear Programming: single variable optimization (application)	In depth understanding of technics to solve a one variable optimization problem	3,5
Session 10	Review of theory of function of 2 variables	In depth understanding of calculus theory of function of 2 variables	3
Session 11	Unconstraint optimization of a function of 2 variables (theory)	Understanding of optimisation theory of function of 2 variables	3
Session 12	Unconstraint optimization of a function of 2 variables (application)	Understanding and using optimization theory of function of 2 variables	3
Session 13	Revision session (mock exam)	All the skills previously highlighted	1,2,3,5,6
Session 14	Midterm		
Session 15	Presentation of the project and the expectations	Developing skills of structuring and organizing presentations	5,7

Session 16	Constraint optimization of a function of 2 variables (theory)	Understanding the Lagrange multiplier method	3
Session 17	Constraint optimization of a function of 2 variables (application)	Understanding and using the Lagrange multiplier method	3
Session 18	Constraint optimization of a function of 2 variables (application)	Understanding and using the Lagrange multiplier method	3,5
Session 19	Introduction to Game theory	Understanding the basic technics of Game theory	1
Session 20	Forecasting techniques	Review of the different forecasting techniques (qualitative vs quantitative)	4
Session 21	Forecasting techniques	Applications to OR problems	4,5
Session 22	Project presentations	Applying skills of structuring and organizing presentations	1,5,7
Session 23	Project presentations	Applying skills of structuring and organizing presentations	1,5,7
Session 24	Wrap up and Review	All the skills previously highlighted	1 to 6

Teaching and Learning Strategies:

This module uses a wide range of teaching and learning strategies to provide a stimulating learning environment that encourages students to take control of their own learning, to engage with a wide range of mathematical knowledge and skills, and to work collaboratively while developing self-awareness. The strategies have been carefully chosen to support students towards learning outcomes and assessments and to cater for diversity across the student body.

Teaching and Learning Strategies include:

- Exercises and Classroom discussions: Exercises will be set in class followed by discussions in pairs.
- Quizzes set on *Kahoot*
- Independent research activities (the final project will require the students to do independent research on a topic or and present their findings in class)

Formative and Summative Assessment Strategies:

Formative Assessments:

The student will have the opportunity to prepare for the in-class assessments: A mock midterm in session 13 to prepare of midterm and mock final exam in session 23 to prepare for the final exam. Several past papers are available on the Moodle page of the module.

In Session 15, the students will be presented with the expectation of the project and the research skills that they will have to use.

Assessment schedule	Name of assessment	Format of assessment	OELS Invigilation Needed? Y/N	Duration	Weighting	LOs
Session 15	Midterm	(2h) 5-6 exercises with sub questions. Questions will be based on the syllabus covered until session 13.	Y	2h	25%	1,2,5,6,7
Exam week	Final Exam	(2h) MCQ on knowledge + 4-5 exercises with sub questions. Questions will be cover the entire syllabus with a focus on sessions 16 to 23	Y	2h	50%	1 to 7
Session 22 or 23	Group Project	Students will be in group of 3 to 4 and will work on a project which comprises of 3 parts: 1/ Explanation of a OR theory (among a list of 10 topics) 2/ History of this theory 3/ Application to an example	N		25% (15% for the written project and 10% for the presentation)	1,2,5,6,7
After semester	Resit exam	(2h) 5-6 exercises with sub questions. Questions will be based on the syllabus	Y	2h	100% (replaces the final module grade)	

Feedback Strategies:

Student will receive verbal feedback on activities and exercises done in class. The Students will also receive written feedback after completing their midterm. The comments on their performance will help them review for the final exam.

Students will be encourage to solve exercises in front of the class, receiving oral feedback about their presentation skills.

Upon request, the student will be able to get the breakdown of the grade of their project.

Reading Lists:

Books:

Bronson, R., Naadimuthu, G. (1997) *Schaum's outlines, Operations Research*, 2nd edition. New York: Mac Graw-Hill Education.

A pdf version of the book is available on Moodle

Penberon, M., Rau, N. (2015) *Mathematics for economics. An introductory textbook*, 4th edition. Malcolm Pemberton and

Nicholas Rau. Manchester: Manchester University Press

Answers to all exercises can be found at: chrome-extension://efaidnbnmnnibpcajpcglclefindmkaj/https://www.homepages.ucl.ac.uk/~uctpb08/ANSEXRC4e.pdf

Handout with exercises available on Moodle

Websites:

<http://mat.gsia.cmu.edu/classes/QUANT/>

Prerequisite:

- Algebra and Differentiation: at a level of further math A level
- Basic skills on Excel

Preparation:

N/A

Module Handbook

Module title: Management Theory & Leadership

Lecturer's name: Dr. Kit Barton

Email address: kbarton@omnesintervenant.com

Contact hours: 13,5

Assessment hours: 1.5 hours in Session 8

Independent study hours expected: 24 hours

ECTS credits: 2 ECTS

Programme level: Level 6

Prerequisites: None

Aims:

What makes a leader in a managerial context and am I one? Leadership is the process of influencing other people to achieve organizational management goals. Management theory and leadership studies is the growing body of knowledge that seeks to understand how that influence operates within organisations. In this module, you will learn and critique the most current and more advanced leadership models and theories, identifying the positive and negative aspects of each, and comparing them to synthesise solutions in complex scenarios. Through case studies, we see how these leadership models function in practice, both historically and in the contemporary environment, within all types of organisations, including the business and the public sector. In addition, you will expand the scope and depth of your knowledge, by practicing your own advanced personal leadership skills, determining what works best for you and what might enhance your future employability. Through highly challenging and complex collaborative exercises with other students, using the classroom as a laboratory to test and practice the ideas and techniques, you will develop your own awareness of your preferred leadership styles and improve your decision-making to an advanced degree.

Learning Outcomes (LOs):

By the end of this module, students will be able to:

1. Collaborate and build in-class networks to solve complex organisational and managerial challenges in challenging settings, while enhancing personal professional development with focus on employability
2. Critique and synthesize advanced theories, concepts and facts from management theory and leadership studies relevant to organizational tasks and challenges

Syllabus Content:

Sessions	Topic/Knowledge	Skills	LOs
Session 1	Introduction to Management Theory & Traditional Leadership	Communication, listening skills, and reading skills	1&2
Session 2	Trait Theory of Leadership	Utilizing digital resources	1
Session 3	Behavioural Theory – Task Orientation	Collaboration & networking skills	1&2
Session 4	Consultancy Simulation Practice	Collaboration & networking skills	1&2
Session 5	Behavioural Theory – Social Orientation	Communication & listening skills	1
Session 6	Contingency/Situational Approach	Conceptual & critical thinking skills	1
Session 7	Sources of Power	Collaboration & networking skills	1&2
Session 8	Consultancy Simulation Assessment	Collaboration & networking skills	1&2

Teaching and Learning Strategies:

This module uses lectures, workshops, guided learning, and discussion groups to generate a stimulating learning environment that encourages students to take control of their own learning, to engage with a wide range of knowledge and skills, and to work collaboratively while developing self-awareness. The strategies have been carefully chosen to support students towards learning outcomes and assessments and to cater for diversity across the student body.

Teaching and Learning Strategies include:

- Classroom discussions
- In-class research activities
- Role plays and simulations
- Reflective exercises
- Group work for problem-based scenarios

Formative and Summative Assessment Strategies:

Formative Assessments:

Consultancy Practice Exercise: Students will be placed into teams and asked to critique and synthesize relevant management and leadership models from the class to assigned case studies. These teams will be required to collaborate, networking to find solutions to complex

case studies and challenges set by the lecturer. The solutions will require successful synthesis of ideas and frameworks discussed in the module. Students will receive feedback from other students and from the lecturer in class.

Summative Assessments:

Consultancy Simulation Assessment: Students are required to simulate the activities of consultancy group. Placed into a team, students are required to critique and synthesize theories, concepts and facts from the module in relation to a chosen target business or company. The students will collaborate in choosing a specific business or organization as a target. Role-playing as management consultants and recognizing how consultancy relates to their future employment, they will create a PowerPoint presentation to enhance their 10 minute presentation of a leadership analysis of their chosen target. They will be evaluated on their ability to diagnosis the current leadership strategy of the target and to provide recommendations for improvement. Part of the assignment (70%) is based on the team's performance and the other part of the assignment is an individual written assignment (30%). The OELS marking criteria for Oral Presentations will be utilized for the in-class presentation and the OELS marking criteria for Presentations will be used for the invidual written assignment.

Assessment schedule	Name of assessment	Format of assessment	OELS Invigilation Needed?	Contribution to final grade	LOs
Session 4	Consultancy Practice Exercise	10 minute simulation	N	Formative Assessment	1 & 2
Session 8	Consultancy Simulation	15 minute simulation + individual written assignment – reflective peer assessment (in-class)	N	100% (Shared assessment 70%+Individual written assignment 30%)	1 & 2
Resit Information	Individual Reflection	Recorded Video (5 minutes) and Individual Written Statement	N	100% (replaces the final module grade)	1 & 2

Feedback Strategies:

Consultancy Practice Exercise: Students will receive oral & written feedback from the lecturer and from their peers immediately after their presentation. The written feedback will be delivered through a pre-prepared 'Consultancy Exercise Feedback Sheet'

Consultancy Simulation: Students will receive oral feedback from the lecturer immediately after the consultancy simulation. Written feedback on the Individual written assignment will be provided to students directly.

Resit:

Students who fail the summative assessment will be offered a resit opportunity where they may submit a 10 minute recorded video of them completing individually a Consultancy Simulation assessment (as described above). They will accompany this with an Individual Written Statement (as described above).

Reading Lists:

- *Carnegie, Dale. How to Win Friends and Influence People. London, Vermilion, 2019.*
- *Northouse, P. (2019). Leadership: Theory and practice. 8th ed. Sage Publications.*
- *Samet, Elizabeth D. Leadership : Essential Writings by Our Greatest Thinkers. New York, W. W. Norton, 2017.*
- *Taylor, Frederick Winslow. The Principles of Scientific Management. Charleston, Sc, Createspace, 1911.*

Prerequisite:

None

Module Handbook

Module title: Start-up for Engineers

Lecturer's name: Michael Abeyta

Email address: mabeyta@omnesintervenant.com

Contact hours: 12 hours

Assessment Hours: Final Examination, 1 hour. (Paper exam invigilated by external invigilator).

Independent study hours expected: 24 hours

ECTS credits: 2 ECTS

Programme level: Level 6 = Year 3 Undergraduate

Aims:

This module introduces students studying and practicing engineering disciplines to startup companies, the various stages a startup goes through in its lifetime, financing decisions, strategic implications thereof, risk versus reward for those involved in startups, and successful exits. Students will understand the growth strategies of famous startup companies, understand the decision-making process of startups, evaluate the investor pitch presentations of new startup companies, and by simulating the investment process, decide whether a startup can be an attractive investment candidate. A broad overview of the startup investment world will be presented and examined, including business angel investing, equity crowdfunding, and private equity (venture capital).

Learning Outcomes (LOs):

1. Analyze and compare startup ecosystems, focusing on Silicon Valley and London's Shoreditch, evaluating the key players (incubators, accelerators, business angel investment networks, and venture capitalists (VC's).
2. Objectively investigate a real-life startup's investment pitch and decide whether an investor is likely to move forward with the investment process.
3. Effectively present the team's decision to the class.
4. Create and present a profile of a top venture capital firm, its history, famous portfolio companies (past investments),
5. Select and present a profile company that has navigated the entire startup journey from birth to successful exit (Initial Public Offering).

Knowledge

By the end of this module, students will have demonstrated:

- 1) The ability to analyze and compare startup ecosystems, focusing on Silicon Valley and London's Shoreditch, evaluating the key players (incubators,

accelerators, business angel investment networks, and venture capitalists (VC's).

- 5) Select and present a profile company that has navigated the entire startup journey from birth to successful exit (Initial Public Offering).

Skills

By the end of this module, students will be able to:

- 3) Effectively present a team's decision to the class.
- 4) How to create and present a profile of a top venture capital firm, its history, famous portfolio companies (past investments)

Values

By the end of this module, students will have demonstrated a commitment to:

- 2) Objectively investigate a real-life startup's investment pitch and decide whether an investor is likely to move forward with the investment process.

Syllabus Content:

Sessions	Topic/Knowledge	Skills	LOs
1	Introduction to Startup Companies. Review of London's Startup Ecosystem. Tech Hub roots in Silicon Valley (California).	Understand reasons for Silicon Valley's formation, longevity, and why new tech hubs are developing elsewhere.	1
2	Understanding Stock Options as a form of employ remuneration, retention, motivation. Agile project management methods.	Understanding the risk vs. reward decision making of all players in the entrepreneurial journey. Understand the use of Agile project management methods in startups.	1,5
3	A comparison of financing examples for two small startups, similar investments and equity percentages. Introduction to Business Angel Networks as a source of financial assistance, growth and advice for company founders.	Understanding and evaluating the impact of financing decisions on ownership, decision-making power, entrepreneurial autonomy, future implications for successful exits.	1,2

4	Introduction to Venture Capital firms as a source of financing for growing startups. Assignment of Team Presentations.	Understanding the VC Ecosystem, role of the various entities.	1,4
5	Walking Tour of London's Tech Hub ("Silicon Roundabout"), focusing on key ecosystem players (e.g., accelerators, famous startups, "unicorns").	Viewing the world's 3 rd largest tech hub, from the ground.	1,5
6	Team Presentation of assigned Venture Capital Firm, selected Portfolio Company (past startup investment of VC).	Understanding the VC Ecosystem, role of the various entities.	4,5
7	Overview of the fundraising process for startups. Description of required elements of a startup investment pitch. Assignment of new teams for video pitch analysis.	Understanding and evaluating the effectiveness of various startup investor pitches. Decision as to whether to proceed with discussions presented, defended.	1,2
8	Investor Pitch Presentations: Delivery of analysis to the class. VC Ecosystem Online Test.	Decision as to whether to proceed with discussions presented, defended.	3

Teaching and Learning Strategies:

This module uses a wide range of teaching and learning strategies to provide a stimulating learning environment that encourages students to take control of their own learning, to engage with a wide range of knowledge and skills, and to work collaboratively while developing self-awareness. PowerPoint presentations will be used to explain the theory. The strategies have been carefully chosen to support students towards learning outcomes and assessments and to cater for diversity across the student body.

Teaching and Learning Strategies include:

- Lectures to introduce module concepts
- Classroom discussions and interactive sessions between students and lecturer
- Guided Walking Tour of London's Tech Hub
- Quizzes
- Real-life case studies
- Independent research activities
- Role plays and simulations
- Practice exercises for group presentations
- Group work for problem-based scenarios

Formative and Summative Assessment Strategies:

Formative Assessments:

Students will be placed into teams and asked to apply the concepts taught in the class to analyze various aspects of the startup/entrepreneurial process. Students will then make brief presentations to the class demonstrating their collaboration skills and their understanding of the relevant theories from the module.

Venture Capital Firm Team Presentation	Presentation 1	10–15-minute presentation on assigned Venture Capital Firm, selected Portfolio company, IPO, stock market performance.		4,5
Investor Pitch Team Presentation	Presentation 2	10–15-minute presentation on assigned Startup Pitch Presentation. Role play, recommendation regarding investment decision.		2

Summative Assessments:

Students will be placed into teams and required to examine and apply theories, concepts and facts from the module. As a group, the students will collaborate in choosing and analyzing a specific well-known portfolio company of the assigned venture capital firm. This will be delivered to the class in a 10–15-minute PowerPoint presentation, including a question and answer period. In another assessment, role-playing as potential business angel investors, they will create a 10–15-minute PowerPoint presentation of their analysis of a real-life startup company, and evaluate its effectiveness, and present recommendations as to whether the company should continue to be engaged with. They will be evaluated on their ability to diagnosis the current strategy, management team, target market, and overall attractiveness of the startup as an investment target, and to provide recommendations for improvement.

A final online quiz will be given to students to test the understanding and retention of the concepts taught in the module.

Assessment schedule	Name of assessment	Format of assessment	OELS Invigilation Needed?	Contribution to final grade	LOs
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Final Exam and Class Participation	Quiz, Participation	1 hour, Paper exam, invigilated Online multiple question answer quiz, Overall class attendance/participation	Y	100%	1,2,3, 4,5
RESIT	ONLINE Quiz	1 hour Boostcamp quiz (modified version of the original Final exam with multiple choice questions)	N	100%	All

Feedback Strategies:

The students will be given verbal feedback as individuals, in groups and as a class depending on the task and situation involved. This feedback will be provided by the lecturer and from fellow students.

Team Presentations: Students will receive oral feedback from the lecturer after their presentations, should they request it, and from other students during the Question-and-Answer sessions.

Final Quiz/Examination: Feedback will be provided on the online test script (Moodle) in an automated manner.

Reading Lists:

Cohen D and Feld B (2019) *Do More Faster: Techstars Lessons to Accelerate Your Startup*, 2nd edn, John Wiley & Sons, Inc., Hoboken New Jersey

Ries E (2011) *The Lean Startup: How Constant Innovation Creates Radically Successful Businesses*, 1st edn, Portfolio Penguin, Great Britain

Prerequisite:

None.

Preparation:

None.

Module Handbook

Module title:	Finance For Engineers
Lecturer's name:	Joe Ponsonby
Contact hours:	12 hours
Email address:	jponsonby@omnesintervenant.com
Independent study hours expected:	24 hours
ECTS credits:	2 ECTS
Programme level:	Level 6 = Year 3 Undergraduate
Prerequisites:	None

Aims:

This module aims to equip students with key finance concepts that will help them build a solid foundation for more advanced issues during their studies. This includes an understanding of the fundamentals of finance including inflation, time value of money, investment returns and risks of investments and how to compare different investments from a Risk / Return perspective. Students will study different asset classes, how investments are made by global investors and undertake a study of the relevance of finance in different cities around the world.

Learning Outcomes (LOs)

On successful completion of the module, students should be able to:

Knowledge

By the end of this module, students will be able to:

1. Understand and utilize the basic fundamentals of finance (inflation, yield, risk / return and 'Time Value of Money') with associated calculations to measure and utilize these fundamental concepts.
2. Understand how investors assess risks of investing in different assets and different countries.

Skills

By the end of this module, students will be able to:

3. Understand how the Stock Markets and Bond Markets work and identify the key Asset Classes for the global investor.

4. Understand how the Foreign Currency market works and associated calculations of foreign exchange between currencies.

Syllabus Content:

Sessions	Topic/Knowledge	Skills	LOs
Session 1	Fundamentals of finance (what is inflation, categories of inflation, PPP and the Big Mac index)	Conceptual & critical thinking skills	1
Session 2	Time Value of Money Risk & Return Annual income and Capital Gain Investment timelines	Conceptual, analytical & critical thinking skills	1
Session 3, 4	Asset classes Examples of investment returns and how to measure this How assets are traded Primary and secondary markets	Conceptual, analytical & critical thinking skills	1 2 3
Session 5, 6	Cities around the world Country presentations	Communication & presentation skills Research of basic topics in groups and explanation of findings by the group to the class	3
Session 7	Foreign Exchange and calculations	Conceptual, analytical & critical thinking skills	4
Session 8	Revision topics for final 90-minute exam	Critical thinking skills	ALL

Teaching and Learning Strategies:

This module uses a wide range of teaching and learning strategies to provide a stimulating learning environment that encourages students to take control of their own learning, to engage with a wide range of knowledge and skills, and to work collaboratively while developing self awareness. The strategies have been carefully chosen to support students towards learning outcomes and assessments and to cater for diversity across the student body.

Teaching and Learning Strategies include:

- Classroom discussions
- In-class research activities
- Independent research activities
- Group presentations

Formative and Summative Assessment Strategies:

Formative Assessments:

Group presentations: Students will form groups of maximum 4 students. Each group will be asked to present an overview of their selected Asset Class. This presentation will be made to the lecturer and other students.

Interactive discussions in class: throughout the module the students will be providing individual feedback and feedback through collaboration on live questions asked by the lecturer to the whole class on each topic throughout the module. Part of this exercise is to enable the lecturer to assess on a dynamic basis the level of understanding across the student body and to fill in gaps of knowledge and understanding where relevant. Short quizzes will be included to test level and understanding of knowledge gained throughout the course.

Summative Assessments:

Final Exam: Students will be required to complete a 90-minute written exam which will be invigilated.

Assessment schedule	Name of assessment	Format of assessment	OELS Invigilated Needed? Y/N	Duration of exam	Weighting	LOs
ALL	Participation				10%	ALL
After Session 8	Final Exam	PC Lab	Y	1.5 Hours	90%	ALL
Resit Information	Resit Exam	Online on Boostcamp	N	1.0 Hours	100% (replaces the final module grade)	ALL

Feedback Strategies:

Students will receive regular feedback in class from classroom activities, including group discussions. This feedback will be provided by the lecturer and also their peers.

Group Presentation: Students receive verbal feedback from the lecturer after their presentations

Final Exam: In-class revision and Q&A on topics for the final exam.

Reading Lists:

Melicher R, Norton E. (2020), *Introduction to Finance: Markets, Investments and Financial Management*. Hoboken, NJ: Wiley Publishing.

Mark Levinson (2018), *The Economist Guide To Financial Markets 7th Edition: Why they exist and how they work*.

Various blogs, You Tube and media will be suggested for revision topics.

Prerequisite:

Mandatory:

Search on Investopedia.com for definitions of the following: Stock Market, Bond Markets, Asset Classes, Financial Markets, commodity trading and foreign exchange trading.

Module Handbook

Module title: Advanced Integrated English

Lecturer's name: Iain Wark

Email: iwark@omnesintervenant.com

Contact hours: 12 hours

Assessment Hours: Students are expected to spend a minimum of ten (10) hours on their final assessment.

Independent study hours expected: 24 hours

ECTS credits: 2 ECTS

Programme Level: Level 6 = Year 3 Undergraduate

Aims:

This module aims to introduce students to, and reinforce their familiarity and confidence with, English which is used by native speakers on a day-to-day basis. The students will learn to be able to recognise various forms of 'confusing' English which are in common usage by native speakers, and to have the confidence and ability to define and utilise them in their own use of the language, be that written or spoken. Students will come to realise the prevalence of these forms of language and that if they want their English to become truly fluent, they will need to be comfortable with them. This will contribute to their future employability should they choose to work in an area where intimate knowledge of English is required.

Learning Outcomes (LOs):

Knowledge

By the end of this module, students will have demonstrated:

- 1) A desire to identify, explain and discuss various types of language (complete expressions; vocabulary; wordplay) which are commonly used by native speakers in all areas of life.

Skills

By the end of this module, students will be able to:

- 2) Correctly identify, define, analyse, and synthesise such language from authentic sources.

Values

By the end of this module, students will have demonstrated a commitment to:

- 3) Remembering and confidently using such language in their day-to-day lives, and to continue to recognise and use other examples of such language they may encounter after finishing the course.

Syllabus Content:

In this section, outline the daily/weekly and content (knowledge and skills) that students will engage with in workshops and private reading:

Sessions	Topic/Knowledge	Skills	LOs
Session 1	Introduction to English idioms. What are they, and how and why are they used?	Critical thinking skills. Assimilation of language.	1
Session 2	Continuation of English idioms with a specific focus on animal idioms. The use of this language in context.	Critical thinking skills. Assimilation of language.	1,3
Session 3	Introduction to British newspapers. What are the different types of newspapers and how do they differ in their content and use of language?	Critical thinking and reading skills. Identifying formatted and lexical differences.	1,2
Session 4	Looking more closely at various forms of language commonly used in British tabloid newspapers with use of specific, authentic examples.	Analysis of language from cultural viewpoints. Critical thinking and reading.	1,2,3
Session 5	Introduction to phrasal verbs; their importance in English and the problems they can cause for non-native speakers.	Grammatical skills. Critical thinking.	1,3
Session 6	Continuation of phrasal verbs. The use of phrasal verbs in context.	Critical thinking skills	1,2,3
Session 7	Portmanteau / blended words. The prevalence and use of these with native speakers.	Critical thinking skills.	1,2,3
Session 8	Countability and plural nouns. The difficulty and confusion experienced by non-native speakers in this area.	Grammatical skills. Critical thinking and analysis.	1,3

Teaching and Learning Strategies:

This module uses a wide range of teaching and learning strategies to provide a stimulating learning environment that encourages students to take control of their own learning, to engage with a wide range of knowledge and skills, and to work collaboratively while developing self awareness. The strategies have been carefully chosen to support students towards learning outcomes and assessments and to cater for diversity across the student body.

Teaching and Learning Strategies include:

- Classroom discussions
- Frequent use of question and answer (with students actively encouraged to question both the teacher and each other)
- In-class research activities
- Independent research activities
- Practice exercises related to language introduced in-session
- Use of authentic materials to enhance student learning and understanding

Formative and Summative Assessment Strategies:

Formative Assessments:

Students will be given frequent practice exercises (in almost every session) to use and reinforce the language which has been introduced. They are encouraged to collaborate when appropriate.

Constant and consistent feedback will be given by the teacher as they monitor the students during the completion of these exercises.

Answers to these formative assessment exercises will be given in class by the students themselves, with everyone contributing in order to make as inclusive an experience as possible. Students who may be less confident with their ability in English will be assured that their contribution is as valid as anyone else's.

Summative Assessments:

Students will produce an individual piece of analytical work, using authentic materials i.e., British tabloid newspapers. They will be expected to produce an essay which identifies and analyses the various forms of language studied throughout the module by buying and studying an actual British tabloid newspaper. Students will be actively encouraged to bring their newspapers to the teacher to ensure that they have chosen appropriate stories / articles for analysis and that they are not incorrectly identifying or analysing language. Students will have approximately four weeks to complete the assignment.

The grading of this work will be determined by the correctness of the language analysis presented, which will in turn show a student's understanding of the various forms of language and word play which have been presented throughout the module. The work is also expected to be of a level of English which is the highest any particular student can produce, ***without the aid of translation software or any AI related software.***

Grading criteria are as follows:

0 – 9.9 FAIL The student failed to produce work of sufficient quality. This may be for one or more reasons, such as: not doing what was asked, work being of insufficient length, omission of one or more key components, plagiarism, not submitting work, obvious use of AI software.

10 – 11.9 – LOW PASS The student produced work which was of sufficient quality to pass, but was not done to a high standard. Work achieving a grade in this band will typically include various mistakes such as: analysing language incorrectly, frequent misidentification of language, incorrect use of grammar so as to possibly impede understanding and meaning, missing what is deemed to be obvious language from source material, having an impersonal or overly short conclusion to the work.

12 – 13.9 - MEDIUM PASS The student produced work which was of sufficient quality to pass but which still contained some of the errors detailed in the above band. There will, however, be analysis which is correct and the conclusion to the work will be of a more personal nature.

14 – 15.9 MEDIUM HIGH PASS – The student produced work of good quality. However, some of the errors detailed above may still be present, only to a lesser degree. An assignment achieving this band will also be judged more closely on language which is missed in the analysis. The conclusion will be detailed, thoughtful, and personal with reference to language presented in the analysis.

16+ HIGH PASS - The student produced work of very good quality. There will be few to none of the errors detailed above. The work will analyse all (or nearly all) of the appropriate language available in the chosen source material. There will be few grammar, punctuation, or lexical errors evident. The conclusion will be detailed, thoughtful, and personal and will closely refer back to the chosen language presented in the analysis.

Assessment schedule	Name of assessment	Format of assessment	OELS invigilation needed?	Duration if exam	Contribution to final grade	LOs
Essay will be set in session 4	Final Essay	The essay, as detailed above, will assess the students' ability to identify and analyse the various language forms studied from session 1. The essay will be a minimum of 1000 words, and will be submitted on Boostcamp.	N	N/A	80%	1,2,3
	Participation	Refers to taking an active part in class, but also to following rules regarding use of technology, decorum, lateness etc.	N	N/A	20%	
Resit Information		Online. Boostcamp Quiz. The quiz will test students on the specific language which was studied in class across all areas (idioms, phrasal verbs, portmanteau words, puns / wordplay). The questions in the quiz will be randomised so no two students will see the same set.	N	30 mins	100% (This will replace the final, failing module grade).	All, as far as possible.

Feedback Strategies:

Students will receive daily feedback in classroom activities from the tutor and their peers. Feedback for the final, summative assessment will be given in a short, written form (around 100 words) on Boostcamp after all essays from students in a certain group have been read and graded by the teacher. This feedback will generally be received by students no more than three weeks after the final essay has been submitted.

Reading Lists:

Booth, T., and Ben Ffrancon Davies (2021). *English for Everyone: English Phrasal Verbs*. London: DK.

Conboy, M. (2006). *Tabloid Britain: Constructing a Community through Language*. London; New York: Routledge.

OTUK (Online Teachers UK). (2018). *A-Z of English Idioms: 150 Most Common Expressions*. Available at: <https://onlineteachersuk.com/english-idioms/>.

Oxford International English Schools. (2019). *British slang words & phrases | Oxford International English*. Available at: <https://www.oxfordinternationalenglish.com/dictionary-of-british-slang/>.

Writer, J.G.S. (n.d.). *100 Portmanteau Examples of Creative Combined Words*. examples.yourdictionary.com. Available at: <https://examples.yourdictionary.com/100-portmanteau-examples-of-creative-combined-words.html/>

Prerequisite:

There are no prerequisites as such, but it is expected that students will have a certain level of proficiency with the English language. It is understood that not every student in a given group will have the same level of ability or confidence in English.

Module Handbook

Module title: Public Speaking & Key Soft Skills
Lecturer's name: Zacchary Falconer-Barfield
Email Address: zfalconer-barfield@omnesintervenant.com
Contact hours: 12 hours
Assessment Hours: 1.5 hours – Individual Presentations
Independent study hours expected: 24 hours
ECTS credits: 2 ECTS
Programme level: Level 6 = Year 3 Undergraduate
Prerequisites: Basic Understanding of Presentations

Aims:

This module aims to develop key concepts & essential skills of public speaking and presentations and embolden the students with the skills to design and produce advanced speeches and presentations. The students will learn to formulate their abilities to speaking in public, especially using English as a mode of oral communication, and therefore be able to become critically effective public speakers and presenters. This will enable them to deploy these abilities to advance their future employability and how they engage with various business stakeholders and the wider audiences, validating their abilities as a global citizen in an ethical manner.

Learning Outcomes (LOs):

By the end of this module, students will be able to:

1. Critically evaluate their soft skills & synthesizing the advanced knowledge & skills
2. Critically apply a wide range of delivery skills such as vocal performance; body language; storytelling and visual aides to impact the audience and deeply enhance the presentation
3. Perform an advanced prepared speech, that shows depth & breadth of skills & Knowledge

Syllabus Content:

In this section, outline the daily/weekly and content (knowledge and skills) that students will engage with in workshops and private reading:

Sessions	Topic/Knowledge	Skills	LOs
1	Introduction to Essential Soft Skills: Goals & Benefits of Public Speaking & the core 5 Soft Skills; Evaluate the power of Communication and how it delivers impact.	Developing the essential principles of the 5 Core Soft Skills	1,3
2	Communication - 1 st Pillar - The Body: Developing Non-Verbal Communication, how our mind processes it & Using it in Speeches	Developing & Demonstrate Body Language & its increased Impact on Communication	2
3	Communication – 2 nd & 3 rd Pillar: Voice & Words Developing the use of words and critically evaluate a speech	Developing & demonstrating the power of voice and emotion and the power of words and critically evaluating a speech	2
4	Creativity – Developing the idea of creativity & storytelling & how to develop it as a soft skill.	Develop & demonstrate the understanding of creativity as a commercial and presentation context	1,2
5	Embracing the Camera – Working in developing Skills for the Modern video world	Develop & create their ability to work with cameras for presentations	1,3
6	Relationships & Leadership – Developing the understanding or how relationships work and how to become an effective leader.	Develop & demonstrate the understanding of relationship building and leadership in an interpersonal context	1,2
7	Planning/Organisation – How to develop planning & organizational skills –	Develop and demonstrate the understanding of how to organize	1,2,3
8	Teamwork, Creativity & Leadership: The Lego Game and Evaluation	Developing and critically evaluating how to work in a team & apply leadership skills.	1,2,3

Teaching and Learning Strategies:

This module uses a wide range of teaching and learning strategies to provide a stimulating learning environment that encourages students to take control of their own learning, to engage

with a wide range of knowledge and skills, and to work collaboratively while developing self-awareness. The strategies have been carefully chosen to support students towards learning outcomes and assessments and to cater for diversity across the student body.

Teaching and Learning Strategies include:

- Classroom discussions
- In-class research activities
- Role plays and simulations
- Practice exercises for speaking & presentations
- Interactive Exercises
- Games that highlight learning outcomes

Formative and Summative Assessment Strategies:

Formative Assessments:

The students will be given opportunities mostly as individuals but occasionally in groups to speak, present and perform exercises in almost every class. This will give the opportunity for individual and group feedback.

There will be also opportunity for class discussions about the essential elements during the classes

Students will also be encouraged to submit an outline of their final presentation for some constructive feedback.

Summative Assessments:

The students will be expected to demonstrate achievement of their Learning Outcomes by ongoing efforts in class and by a summatively assessed final presentation.

Participation and Engagement: The Students will be assessed on their ability to contribute and perform the in-class exercises. As their will be several role-plays and active speech-based exercises to aide in their development. Each exercise will be graded and an average score given at the end. Assessment criteria is based in the OELS criteria found on Boostcamp.

Final Presentation: A 4 minute speech **without visual aides**. It will be delivered in front of the class. It will demonstrate the student's ability to develop an advanced prepared speech and synthesize their wide range of skills to engage with an audience. This will be assessed by the lecturer's criteria which can be found under the course on Boostcamp.

Assessment schedule	Name of assessment	Format of assessment	OELS Invigilator Needed Y/N	Duration	Weighting	LOs

Ongoing after session 1	Participation & Engagement	Students will be assessed on their ability to contribute and perform their exercises.	N	N/A	40%	1,2
Exam Class	Final Presentation	4 min In Person Speech without visual aides	N	4 min per student	60%	2,3
Resit	Resit	5min Video Presentation about on of the Key Soft Skills discussed in the Course	N	5 min per student	100% - replacing existing grade	1,2,3

Feedback Strategies:

The students will be given verbal feedback as individuals, in groups and as a class depending on the task and situation involved. There will be opportunity for peer feedback as well.

The Final Assessment the student will be given individual verbal feedback on their presentation, and written feedback within 3 weeks if they request it.

Reading Lists:

Recommended Reading –

Anderson, C. (2018). *TED talks : the official TED guide to public speaking*. London Nicholas Brealey Publishing.

Berne, E. (2001). *What do you say after you say hello? : the psychology of human destiny*. London: Corgi Books.

Carnegie, D. (2017). *How to develop self-confidence & influence people by public speaking*. New York: Gallery Books, An Imprint Of Simon & Schuster, Inc.

Carnegie, D. (2018). *How To Win Friends And Influence People*. Toronto: Harpercollins Canada.

Ekman, P. (2004). *Emotions revealed : understanding faces and feelings*. London: Weidenfeld & Nicolson, An Imprint Of Orion Books.

Gleitman, H., Fridlund, A.J. and Reisberg, D. (2000). *Basic psychology*. New York W.W. Norton.

Lopata, A. and Roper, P. (2011). -- *And Death Came Third! : The Definitive Guide To Networking And Speaking In Public*. St Albans: Ecademy.

Nihill, D. (2016). *Do You Talk Funny?*. Benbella Books, Inc.

Sharp, D. (1987). *Personality types : Jung's model of typology*. Toronto, Canada: Inner City Books.

Ted.com. (2019). *TED: Ideas worth spreading*. [online] Available at: <http://TED.com>.

Students will be expected to have watched the top 3 TED.com speeches

Prerequisite:

Some basic understanding of Public Speaking