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Design and Professional Practice 2

Introduction

Dr Ian Radcliffe

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Code: 46 95 51 9

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Module Aims

- First-hand experience of the design and development process
- Real-world engineering problems
- Develop the skills to assist your career progression as engineers, including team working and presentation skills.

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Intended Learning Outcomes

1. Demonstrate an understanding of the product development process,
2. Participate in the formation of a functioning project team,
3. Evaluate suitability of concepts against user needs and risk criteria,
4. Select appropriate prototyping techniques to realise a chosen design concept,
5. Report using a variety of media on the project progress and outcomes.

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Professional Development

Building on experiences from DAPP1

- CAD Skills
- Arduino Programming
- PCB Design
- Presentation technique
- Report Writing
- Group Working

Borrowed toolkits must be returned to the student office within the next week.

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Time Plan and Structure

Term 1

Week	Week Commencing	Lectures / Workshops	Group Seminars	Submission Deadline	Feedback
1	30-Sep-24	Introduction to EDP (IR)		Project Preferences	
2	07-Oct-24	The Design & Development Process (IR)	1. Group Working		Project Groups
3	14-Oct-24	Library and Research Skills (EZ)	2. Project Planning		Supervisor
4	21-Oct-24	Electrical Circuit Drawing (PE/NK)	3. PSD Workshop		Supervisor
5	28-Oct-24	Molecular / Experimental Planning (CS)	4. Creativity Tools & Design Evaluation		Supervisor
6	04-Nov-24	Technical Drawing (IR)	5. Professional Communication & Peer Assessment		Supervisor
7	11-Nov-24	Reading Week			
8	18-Nov-24	Altium Workshop / Solidworks Workshop / Electronics Workshop	6. Sustainability		Supervisor
9	25-Nov-24	Altium Workshop / Solidworks Workshop / Electronics Workshop	Design Review - Session I	Product Specifications Document (Formative)	Design Review Feedback in Session
10	02-Dec-24	Altium Workshop / Solidworks Workshop / Electronics Workshop	Design Review - Session II		Design Review Feedback in Session
11	09-Dec-24	Altium Workshop / Solidworks Workshop / Electronics Workshop	Design Review - Session III		Supervisor feedback on draft PSD

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Time Plan and Structure

Term 2

Week	Week Commencing	Lectures / Workshops	Group Seminars	Submission Deadline	Feedback
12	06-Jan-25				
13	13-Jan-25	Altium Workshop / Solidworks Workshop	7. Presentation Skills		Supervisor
14	20-Jan-25	Altium Workshop / Solidworks Workshop	8. Risk Analysis		Supervisor
15	27-Jan-25	Altium Workshop / Solidworks Workshop	9. Ethics & Generative AI		Supervisor
16	03-Feb-25	Altium Workshop / Solidworks Workshop	10. Poster Design		Supervisor
17	10-Feb-25	Altium Workshop / Solidworks Workshop	11. Technical Report Writing	Group Presentation Videos	Supervisor
18	17-Feb-25	Reading Week			
19	24-Feb-25				Scores and feedback (peer and tutor) on Presentations
20	03-Mar-25			Product Specifications Document (Summative)	Supervisor
21	10-Mar-25				Supervisor
22	17-Mar-25				Supervisor scores and feedback on PSD

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Time Plan and Structure

Term 3					
Week	**Week Commencing**	**Lectures / Workshops**	**Group Seminars**	**Submission Deadline**	**Feedback**
23	28-Apr-25				
24	05-May-25				
25	12-May-25				
26	19-May-25				
27	26-May-25				
28	02-Jun-25				Peer Poster Exchange
29	09-Jun-25			Demo Day Poster Submission	
30	16-Jun-25			Final Report Submission and Demonstration Day Event	
31	23-Jun-25				Scores and feedback on Final Report plus Posters & Demo Day

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Assessment and Feedback

Formative Assessment

Peer & Supervisor Feedback

Staff & Student Engagement

Reflection

Four Assignments:

- Product Specification Document (25%)
- Group Presentation (25%)
- Demonstration Day & Poster (25%)
- Final Report + OneNote link (25%)

Design Reviews

Prototype Reviews

Supervisor Meetings

Group grades will be peer-moderated by up to 25% of the final individual grade.

There will also be a 25% moderation based on professional conduct

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Assessment and Feedback

Feedback

- Weekly group sessions
- Formative feedback on PSD
- Detailed feedback comments on each assignment
- Run-through on presentations
- Design review sessions
- Prototype review sessions

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Support - Supervisors

Support and guidance on your project and feedback on:

- Design concepts
- Progress
- Deliverables

Dr Claire Stanley
Lecturer
Microfluidics and 'Organ-on-Chip' Technology

Dr Ian Radcliffe
Senior Teaching Fellow
Mechanical Engineering

Dr Tweety Tang
Teaching Fellow
Microfluidic-based Cancer organoid culturing

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Support - Technical

Ann Brew
Librarian

Dr Faraz Janan
Senior Teaching Fellow
Computer Engineering

Guidance on technical issues:

- Research
- Design advice for manufacturability
- Material selection
- Supplier options
- Lab procedures

Paschal Egan
Electronics Engineer

Tariq Malik
Electronics Engineer

Niraj Kanabar
Electronics Technician

John Waldock
Mechanical Engineer

Hamid Samivand
Engineering Technician

Mandy Mak
Molecular Bioengineering Teaching Technician

Resources

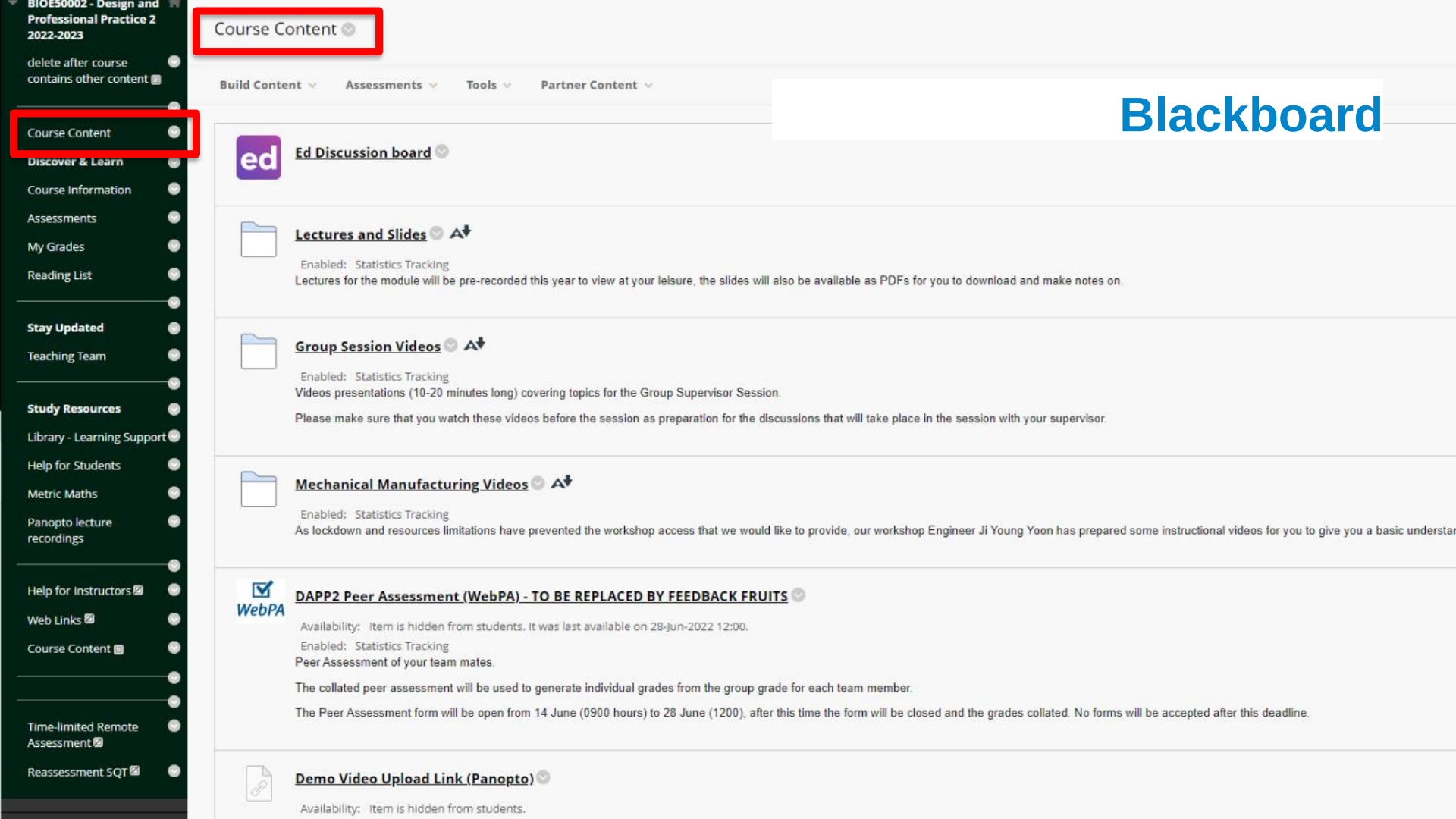
- Imperial College Abdus Salam Library (Ann-Emily Brew)
- RSM Mechanical Workshop (John Waldock)
- 3D Printers and Hackspace (Hamid Samivand)
- RSM Electronics Workshops (Paschal Egan)
- Molecular Bioengineering Students Lab (Morgan Edmonds)
- Computer Rooms
- Imperial College Advanced Hackspace
- The Invention Rooms – White City Campus

Imaged by Heritage Auctions, HA.com

Resources

Posted on Blackboard / Teams / Panopto

- Lectures
- Seminar videos
- Assignment details
- Templates
- Exemplars
- Submission portals
- Feedback on assignments
- Additional support materials
- Announcements


BIOE50002 - Design and Professional Practice 2 2022-2023
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Course Content
Discover & Learn
Course Information
Assessments
My Grades
Reading List
Stay Updated
Teaching Team
Study Resources
Library - Learning Support
Help for Students
Metric Maths
Panopto lecture recordings
Help for Instructors
Web Links
Course Content
Time-limited Remote Assessment
Reassessment SQT
Course Content
Build Content
Assessments
Tools
Partner Content
Blackboard
Ed Discussion board
Lectures and Slides
Enabled: Statistics Tracking
Lectures for the module will be pre-recorded this year to view at your leisure, the slides will also be available as PDFs for you to download and make notes on.
Group Session Videos
Enabled: Statistics Tracking
Videos presentations (10-20 minutes long) covering topics for the Group Supervisor Session.
Please make sure that you watch these videos before the session as preparation for the discussions that will take place in the session with your supervisor.
Mechanical Manufacturing Videos
Enabled: Statistics Tracking
As lockdown and resources limitations have prevented the workshop access that we would like to provide, our workshop Engineer Ji Young Yoon has prepared some instructional videos for you to give you a basic understar
DAPP2 Peer Assessment (WebPA) - TO BE REPLACED BY FEEDBACK FRUITS
Availability: Item is hidden from students. It was last available on 28-Jun-2022 12:00.
Enabled: Statistics Tracking
Peer Assessment of your team mates.
The collated peer assessment will be used to generate individual grades from the group grade for each team member.
The Peer Assessment form will be open from 14 June (0900 hours) to 28 June (1200), after this time the form will be closed and the grades collated. No forms will be accepted after this deadline.
Demo Video Upload Link (Panopto)
Availability: Item is hidden from students.

Course Information

Build Content | Assessments | Tools | Partner Content

Course Information

Purchasing and Expenses

Information and forms required for purchasing materials and claiming back expenses incurred.

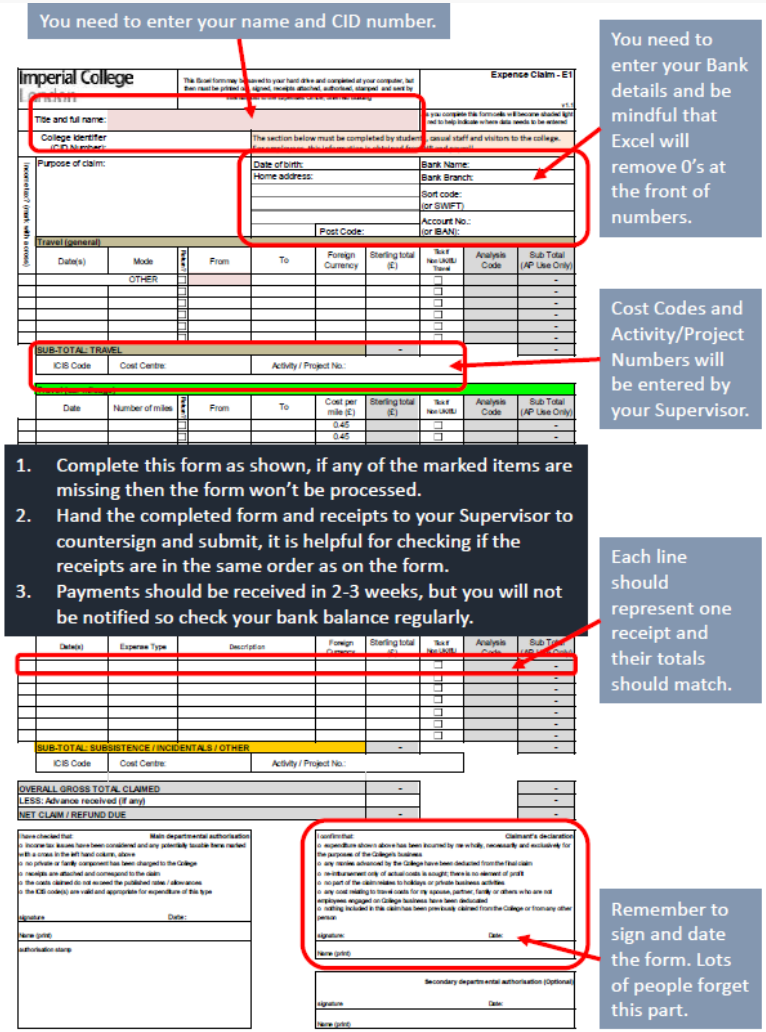
Project Options and Selection

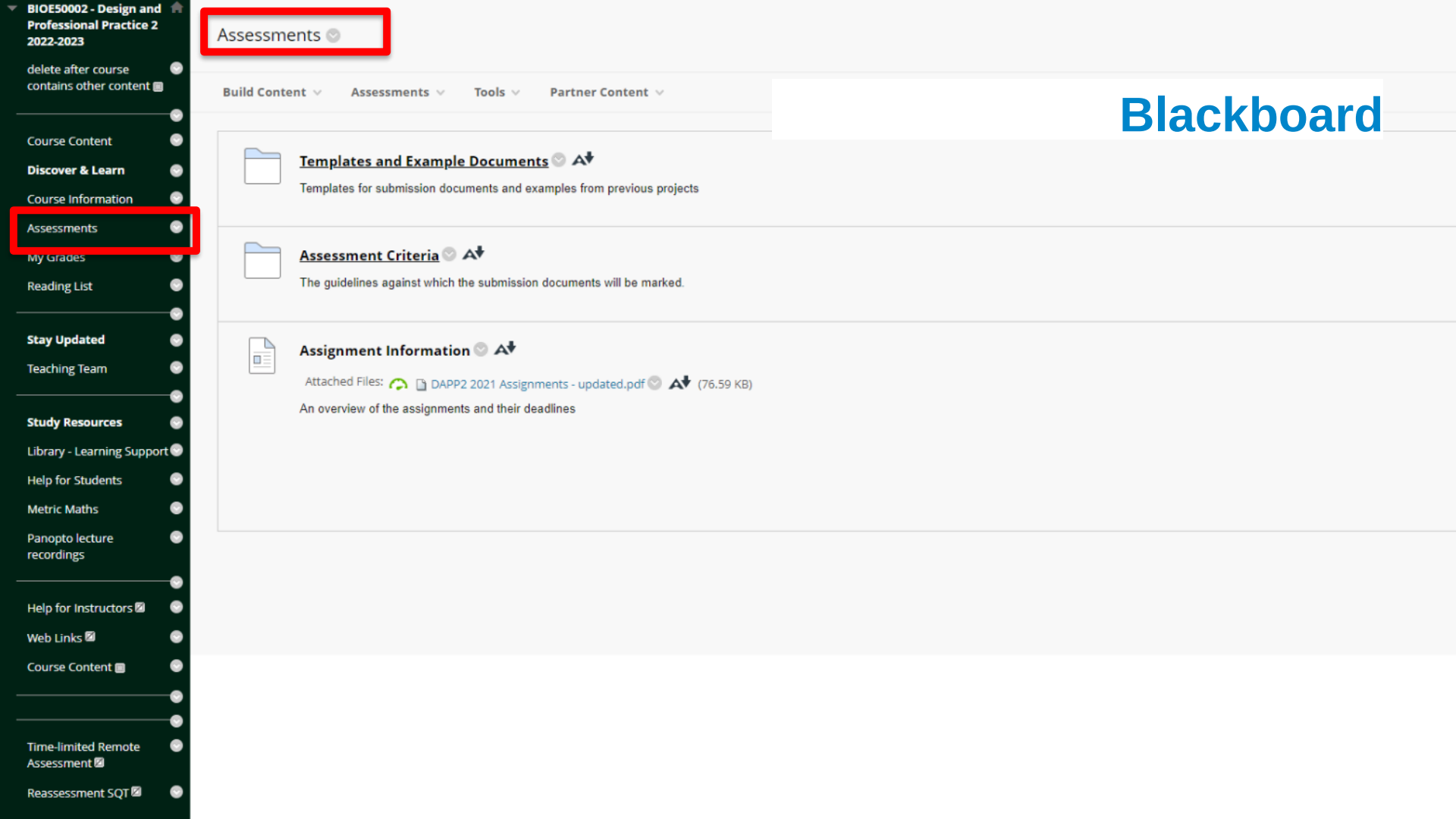
Enabled: Statistics Tracking

Lists of all the project options along with links to the selection portal.

Budget: £1000

Expenses limits: £250 per supplier

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Panopto lecture recordings
Help for Instructors
Web Links
Course Content
Time-limited Remote Assessment
Reassessment SQT
Assessments
Build Content
Assessments
Tools
Partner Content
Blackboard
Templates and Example Documents
Templates for submission documents and examples from previous projects
Assessment Criteria
The guidelines against which the submission documents will be marked.
Assignment Information
Attached Files:
DAPP2 2021 Assignments - updated.pdf
(76.59 KB)
An overview of the assignments and their deadlines

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Project Groups

Groups and Allocations

- Group sizing 8 - 12
- Not self-sorted
- Preferred options

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Project Options

Follow links in recent email or on Blackboard

Project Selection

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Dept of Bioengineering: DAPP2

Logout

Radcliffe, Ian iradclif — Wednesday Sep 20 2023 16:15:30

Search text — Search

Molecular Bioengineering — Programme

Results: Projects found: 6 — Email search results to me

02 - AR Learning
06 - Adaptor
08 - Music Therapy
13 - Adaptive Scalextric
25 - Modular Aiming and Trigger System
26 - Outreach Project

Project details:

The Pace Centre – Augmented Reality Learning
The Pace Centre take a holistic approach with students with Neuro disabilities education, so most lesson include a physical attribute so they can work on their gross motor skills and cognitive skills at the same time. Phonics walks/treasure hunts encourage students to move around the school looking for certain objects, which they are to pick up and return to the class. Sometime students find they have difficulties seeing, picking up and carrying the objects. This project looks to develop an augmented reality environment for students to be able to explore their school with educational packages that meet their curriculum needs in a fun and dynamic way whilst also catering for their therapy goals such as visual skills, gross motor, and fine motor skills.

Dr Ian Radcliffe — Supervisor — **Keywords:**

None — Co-Supervisor

Add to my preferences

1
2
3

Up
Down
Remove

Deadline:
Friday 4th October @10:00

Further information/personal statement you want to include with your project selection (max 2048 characters)

Submit further info

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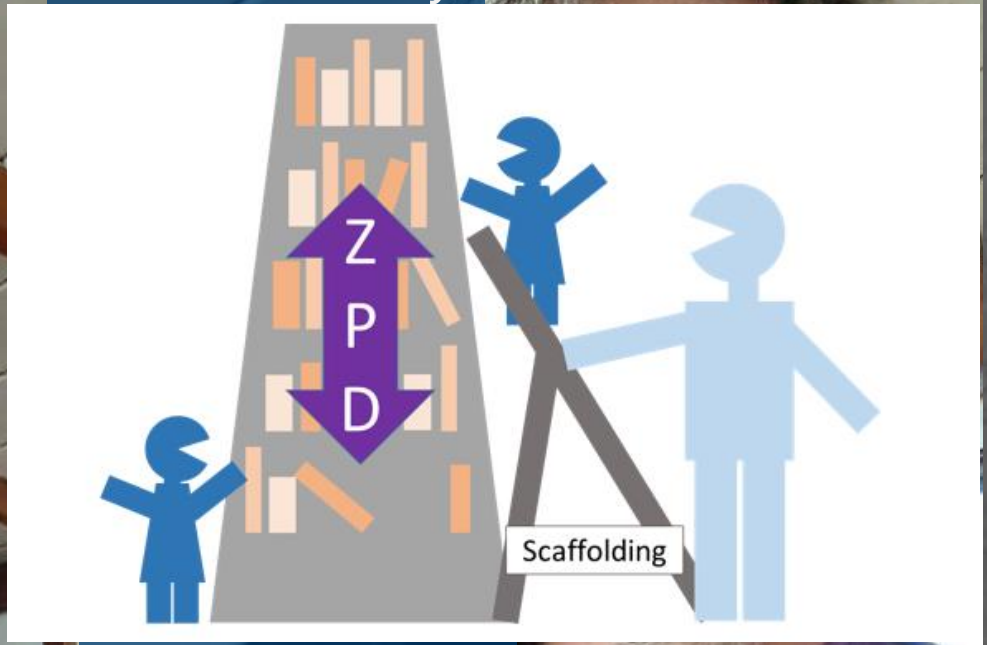
Lessons from Last Year

- Watch the supervisor session videos
- Front-load your work
- Get into the lab, don’t work at home
- Split the workload
- Communicate
- Use the feedback

Martin Holloway
Nettles the cat

Lev Vygotsky

Martin Holloway



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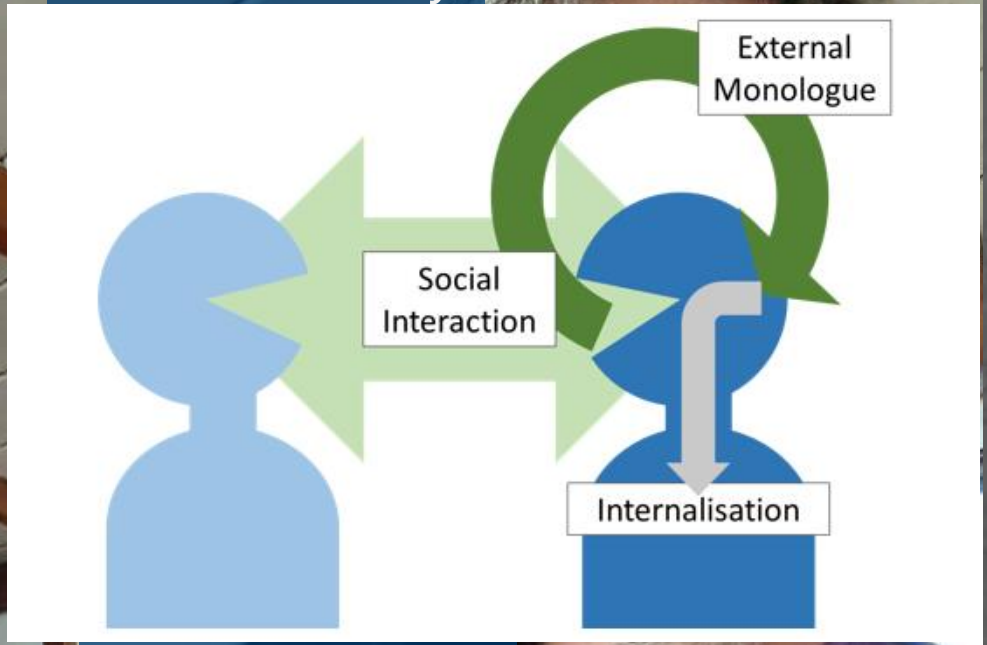

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Lev Vygotsky

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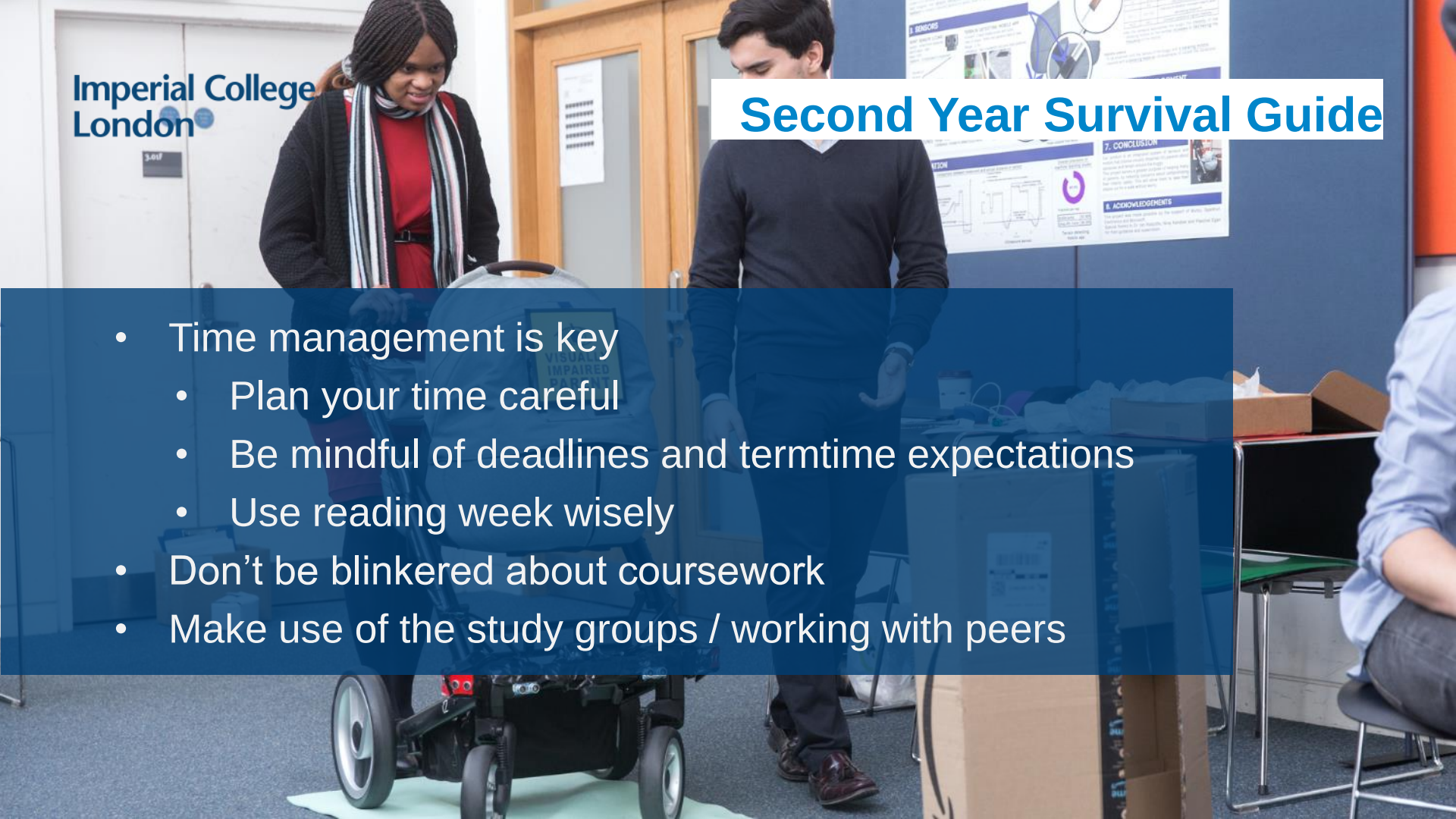
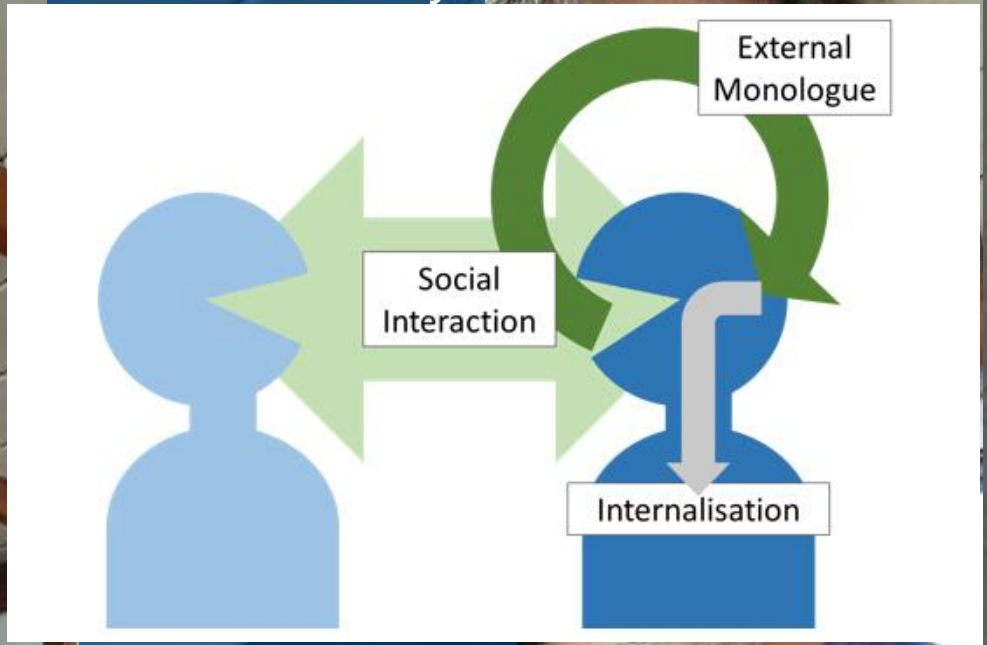
Second Year Survival Guide
VISUALLY IMPAIRED PARENT



Second Year Survival Guide

- Time management is key
  - Plan your time careful
  - Be mindful of deadlines and termtime expectations
  - Use reading week wisely
- Don’t be blinkered about coursework
- Make use of the study groups / working with peers

Martin Holloway



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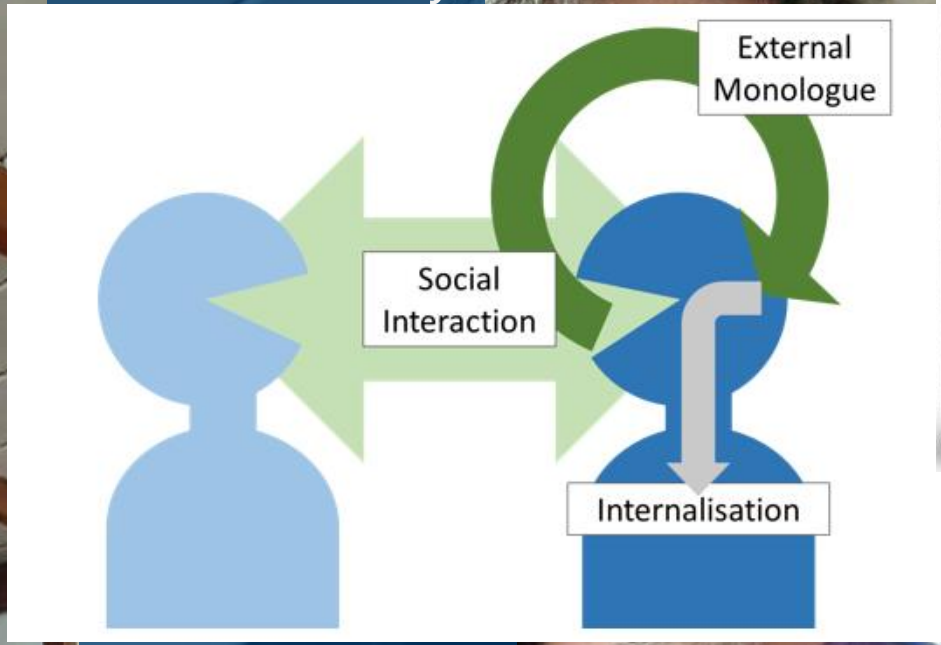
Lev Vygotsky

Martin Holloway



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Lev Vygotsky

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“This is not a kebab shop!”

Prof Drakakis

SUSTAINABLE ENGINEERING

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Summary

- The skills you develop on this module aim to make you practising engineers.
- Focus on working as a team.
- Make use of the all the resources around you.
- The answer is probably on Blackboard.