

AMITY GLOBAL INSTITUTE

MODULE SYLLABUS

Course	Bachelor of Science (Honours) Creating Computing Awarded by University for the Creative Arts (UK)
Module Title	Hardware Hack
Module Syllabus No. (if any)	CCOM4005
Content	<p>What do we do? In Hardware Hack you build on your understanding of programming control systems, but expand it into the physical realm through the introduction of physical computing and electronics. You learn about “adaptive re-use” for electromechanical systems, and are encouraged to locate and acquire low voltage devices, toys or other systems which exhibit interesting or useful properties such as the conversion of rotational force to linear actuation, or systems with sensors or triggers. These systems are usually very well designed and can provide an excellent learning experience for understanding mechanical or electrical systems through reverse engineering.</p> <p>Why do we do it? Understanding the binary relationship between hardware and software is a vital component of your education process. In the modern world, where embedded systems and Internet-Of-Things devices are becoming more commonplace, understanding how digital “objects” can sense the world around them and respond to stimuli, is most certainly the territory of the creative coder.</p> <p>How do we do it? Through a series workshops, inductions and seminars you will be guided through the processes and tools of basic circuit building and electronics fundamentals. These newly acquired skills will be applied through the use of various programmable circuit boards and sensor / actuator components. Through the process of dismantling these systems, opportunities to graft or interface different components will be explored, ultimately leading you to being able to control the systems directly through code.</p>
No. of Teaching Hours	36hours
Teaching Methods	Lecture, workshop, group presentations,
Assessment Methods and Weightages	100% coursework
Skills for Maximising Learning Outcomes	Reading and Research
Dates of Examinations, Major Assessments and Assignments	See University Academic Calendar
Recommended Text	Frauenfelder, Mark. (2007) The Best of Make. Sebastopol, CA : O'Reilly
Additional Reference Texts (if any)	Hartman,Kate.(2014)Make: Wearable Electronics. Sebastopol: O'Reilly& Associates. Nussey, John. (2013) Arduino For Dummies. Chichester, U.K.: J. Wiley & Sons. Platt, C. (2009) Make Electronics. Farnham: O'Reilly. Scherz, P. (2000) Practical Electronics For Inventors. New York: McGraw-Hill.
Additional Remarks (if any)	

No.	Learning Outcomes/Aims
1	Safely construct working electronic circuits and operate appropriate tools and testing equipment.
2	Identify electromechanical systems in order to interface with or utilise their properties for your own projects.
3	Control a range of physical computing and electromechanical systems using code.
4	Evaluate electromechanical systems in order to interface with or utilise their properties for your own projects.
5	To introduce electronics and physical computing skills and understanding.

Note: All Information provided to Amity will be kept strictly confidential except for those required under statutory requirements and by government authorities and relevant university partners and accreditation bodies as part of the regulatory or course requirements.

AMITY GLOBAL INSTITUTE

6	To engage students with wide range of electromechanical systems
7	To engage students with wide range of electromechanical system and engender an investigative approach to material system analysis.
8	To embed an understanding of material systems, microcontrollers, sensors, actuators and the code based and mechanical mechanisms used to control them.

Note: All Information provided to Amity will be kept strictly confidential except for those required under statutory requirements and by government authorities and relevant university partners and accreditation bodies as part of the regulatory or course requirements.