



Cystadleuaeth Sgiliau Cymru
Skills Competition Wales

Competition Brief

Competition Title

Industrial Electronics

Competition Overview

Industrial Electronics technicians and engineers operate specialist equipment in various workplaces ranging from aerospace and the armed forces to the entertainment industry, health and education. They must maintain their skills and knowledge to keep up with the latest developments in technology and be able to follow detailed specifications.

In this competition, competitors will undertake the role of an electronics technician and will be required to work to industry recognised standards. They will be expected to follow a set of pre-competition instructions and download the software so they are familiar with the dedicated printed circuit design software which is used in the competition.

Live competition heats will be held at various venues across Wales

Summary / outline of the competition content

To include detail on core competencies, the all Wales Finals will have four tasks which are outlined in the Brief below.

Entry Criteria

The competition is for those training for a career in the Industrial Electronics industry and studying towards a Level 3 qualification or an apprenticeship.

Please ensure that your entrants have the skills and competences to complete the task.

Entry capacity restrictions by organisation

Maximum of up to 9 per location plus maximum of 9 reserves can be registered in case of absence. Entries may be reduced to suit venue capacity but this will be split fairly across providers.

This is the maximum number of entries permitted by an organisation for this competition.

This is determined by 'location' and 'organisation'. 'Organisation'



refers to the competitors' training provider/employer. 'Location' refers to a site where the competitor studies / is employed. For further guidance on these capacities, click here <https://inspiringskills.gov.wales/competitions/frequently-asked-questions>

Brief

The competition will include:

- Task A: Construction of an electronic project.
- Task B: Theory at level 3 EAL/ BTEC.
- Task C: Embedded systems (Coding and Autodesk Fusion)
- Task D: Fault Finding on pre faulted electronic boards

Infrastructure List

Resources, equipment available at the venue per competitor -
Soldering Irons, desoldering equipment, fume extraction, safety goggles, oscilloscope, multi-meter, frequency generator, PC with Autodesk Fusion, Printer, electronic hand tools, Logic probe, anti-static precaution equipment.

Competition Rules

For full terms and conditions of entry and competition rules visit <https://inspiringskills.gov.wales/terms/registrations-terms-and-conditions>

Competition specific rules

- Task B is under examination rules.
- All appropriate health and safety regulations to be adhered to.

Generic competition rules

- Mobile phones are to be switched off during competition activity.
- Listening to music via headphones is not permitted during competition activity.
- Any questions during competition activity should be addressed to the competition judging panel.
- Competitors should not communicate with other competitors during competition activity.
- It is the responsibility of each competitor to arrive on time for each competition session. No additional time will be allowed if you arrive late.
- Technical failure of your equipment should be reported immediately to the judging panel. Additional time will be allocated if the fault is beyond the control of the competitor.

Marking and Assessment

Marking and judging of this competition will be done by a team of experts from Industry, Further Education or Training Provider, using a marking criteria and allocated marks to

ensure consistency.

Brief breakdown of marking and assessment.

Test	Marking criteria	Percentage
A	Construction of an electronic project	25%
B	Theory at level 3 EAL/ BTEC	25%
C	Hardware Design/ Embedded system: This incorporates a design of a circuit element that will interact with another device. It is possible to have an Arduino element that will interface with the project. Use of Autodesk Fusion will be expected.	25%
D	Fault Finding on pre faulted electronic boards	25%
	Total	100%

Feedback and Recognition

Individual and Group verbal feedback will be provided at the end of the competition.

No results or awards will be awarded on the day as marking will be quality assured.

All competitors will be issued with a Participation Certificate and invited to an online Celebration Event which will be held Thursday 14th March 2024, where the First, Second and Third Awards will be announced. Further details will be communicated to competitors and their points of contacts by email.

Marksheets will be made available to competitors after the quality assurance process has been completed.

Competition Lead

Lead Contact:

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Expert Contacts:

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Briff y Gystadleuaeth

Enw'r Gystadleuaeth

Electroneg Ddiwydiannol

Trosolwg o'r Gystadleuaeth

Mae technegwyr a pheirianwyr Electroneg Ddiwydiannol yn gweithredu offer arbenigol mewn meysydd amrywiol sy'n cynnwys awyrfodod, y lluoedd arfog, y diwydiant adloniant, iechyd, ac addysg. Rhaid iddyn nhw fireinio eu sgiliau a'u gwybodaeth yn barhaus er mwyn dilyn y datblygiadau diweddaraf mewn technoleg, yn ogystal â gallu dilyn manylebau manwl.

Yn y gystadleuaeth hon, bydd y cystadleuwyr yn gwneud gwaith technegydd electroneg a bydd gofyn iddynt weithio i'r safonau a gydnabyddir gan y diwydiant. Bydd disgwyl iddyn nhw ddilyn set o gyfarwyddiadau cyn y gystadleuaeth, gan lawrlwytho a dod yn gyfarwydd â'r meddalwedd cylched printiedig pwrpasol a ddefnyddir yn y gystadleuaeth.

Cynhelir rowndiau rhagbrofol byw mewn sawl lleoliad ledled Cymru.

Crynodeb / amlinelliad o gynnwys y gystadleuaeth

I gynnwys manylion am gymwyseddau craidd, bydd pedair tasg yn rhan o Rowndiau Terfynol Cymru gyfan ac maen nhw'n cael eu hamlinellu yn y briff isod.

Gofynion Mynediad

Mae'r gystadleuaeth hon ar gyfer y rhai sy'n hyfforddi ar gyfer gyrfas mewn Electroneg Ddiwydiannol ac sy'n astudio tuag at gymhwyster Lefel 3 neu Brentisiaeth.

Sicrhewch fod gan eich ymgeiswyr y sgiliau a'r gallu angenrheidiol i gwblhau'r dasg.

Cyfyngiadau capasiti mynediad yn ôl sefydliad

Bydd cystadlaethau yn cael eu cynnal yn eich sefydliadau eich hun; uchafswm o 9 cystadluydd ar bob campws a gellir cofrestru uchafswm o 9 wrth gefn rhag ofn absenoldeb. Efallai y bydd ceisiadau yn cael eu lleihau er mwyn cyd-fynd â chapasiti'r lleoliad ond bydd hyn yn cael ei rannu'n deg ar draws y darparwyr.

Penderfynir ar hyn yn ôl 'lleoliad' a 'sefydliad'. Mae 'sefydliad' yn



cyfeirio at gyflogwr/darparwr hyfforddiant y cystadleuwyr. Mae 'lleoliad' yn cyfeirio at y safle lle mae'r cystadleuydd yn astudio/cael eu cyflogi. Am ragor o wybodaeth am y cyfyngiadau hyn, cliciwch yma

<https://inspiringskills.gov.wales/competitions/frequently-asked-questions?lang=cy>

Brîff

Bydd y gystadleuaeth yn cynnwys:

Tasg A: Adeiladu prosiect electronig

Tasg B: Theori Lefel 3 EAL/BTEC.

Tasg C: Systemau Mewnosodedig (codio ac Autodesk Fusion)

Tasg D: Canfod diffygion ar fyrddau electronig sydd â nam

Rhestr Seilwaith

Adnoddau, bydd yr offer canlynol ar gael i bob cystadleuydd yn unigol yn y lleoliad - Haearn sodro, offer dadsodro, echdynnydd mygdarth, gogls diogelwch, osgilosgop, amlfesurydd, generadur amledd, cyfrifiadur gyda meddalwedd *Autodesk Fusion*, argraffydd, offer llaw electronig, archwilydd rhesymeg (*logic probe*), offer rhagofal gwrthstatig (*anti-static precaution equipment*).

Rheolau'r Gystadleuaeth

I weld y telerau ac amodau mynediad a'r rheolau cystadlu yn eu cyfanrwydd ewch i:

<https://inspiringskills.gov.wales/terms/registrations-terms-and-conditions?lang=cy>

Rheolau sy'n benodol i'r gystadleuaeth

- Cynhelir Tasg B dan reolau arholiad.
- Rhaid cydymffurfio â'r holl reoliadau iechyd a diogelwch priodol.

Rheolau Cystadlu Cyffredinol

- Rhaid diffodd ffonau symudol yn ystod y gweithgareddau cystadlu.
- Ni chaniateir gwrando ar gerddoriaeth gyda chlustffonau yn ystod y gweithgareddau cystadlu.
- Os bydd unrhyw gwestiynau yn ystod y gweithgareddau cystadlu, dylid eu cyfeirio at banel beirniaid y gystadleuaeth.
- Ni ddylai cystadleuwyr gyfathrebu â chystadleuwyr eraill yn ystod y gweithgareddau cystadlu.
- Cyfrifoldeb pob cystadleuydd yw cyrraedd yn brydlon ar gyfer pob sesiwn o'r gystadleuaeth. Ni chaniateir amser ychwanegol os byddwch yn cyrraedd yn hwyr.
- Os bydd methiant technegol ar eich offer dylech hysbysu'r panel beirniadu ar unwaith. Bydd amser ychwanegol yn cael ei ganiatáu os yw'r nam y tu hwnt i reolaeth y cystadleuydd.

Marcio ac Asesu

Caiff y gwaith o farcio a beirniadu'r gystadleuaeth ei gynnal gan dîm o arbenigwyr o Ddarparwyr Hyfforddiant, Addysg Bellach, neu Ddiwydiant gan ddefnyddio meini prawf marcio a marciau wedi'u dyrannu i sicrhau cysondeb.

Dadansoddiad byr o'r marcio a'r asesu.

Prawf	Meini prawf marcio	Canran
A	Adeiladu prosiect electronig	25%
B	Theori ar Lefel 3 EAL/BTEC	25%
C	Systemau Mewnosodedig (codio ac Autodesk Eagle)	25% (10% ar gyfer y gwaith cyn y gystadleuaeth)
D	Canfod diffygion ar fyrddau electronig sydd â nam	25%
	Cyfanswm	100%

Adborth a Chydnabyddiaeth

Bydd adborth llafar Unigol a Grŵp yn cael ei ddarparu ar ddiwedd y gystadleuaeth.

Ni roddir canlyniadau na gwobrau ar y diwrnod gan y bydd angen sicrhau ansawdd y marcio.

Bydd pob cystadleuydd yn cael Tystysgrif Cyfranogi ac yn cael ei wahodd i Ddigwyddiad Dathlu ar-lein a gynhelir Dydd Iau 14eg Mawrth 2024, lle bydd y Wobrau Cyntaf, Ail a Thrydedd yn cael eu cyhoeddi. Bydd manylion pellach yn cael eu cyfleu i gystadleuwyr a'u pwyntiau cyswllt trwy e-bost.

Bydd taflenni marciau ar gael i gystadleuwyr ar ôl i'r broses sicrhau ansawdd gael ei chwblhau.

Arweinydd Cystadleuaeth

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Cyswllt Arbenigol

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