

Competition Brief

Competition title
Laboratory Technician
Competition overview
<p>This competition assesses the skills and abilities of competitors entering the field of laboratory technology in science. The competitors entering this competition would normally be training or studying towards working in a scientific laboratory. They are expected to have a core set of technical skills and abilities that they would like to demonstrate in a competitive environment and further develop through competition.</p> <p>Competitors taking part in this competition should demonstrate their abilities in:</p> <ul style="list-style-type: none"> • Reading and application of technical documents such as instructions related to analysis or procedures, formulations and specifications of substances, diagrams and manuals for equipment. • Handling of the laboratory devices, apparatus and equipment to be used, also handling of the chemicals used in laboratories by implementing safety data sheets and the measures and procedures to be derived from them. • Preparation and processing of samples as well as separation processes for mixtures of liquids and solids. • Performance of cleaning and concentration processes such as centrifugation, distillation, extraction, evaporation and crystallisation. • Determination of physical parameters and matter constants such as temperature, density, pH value, refraction index, melting point and conductivity. • Application of titrimetric and gravimetric methods. • Application of instrumental and electroanalytical methods such as Spectrophotometry, Chromatography, Potentiometry and Conductometry. • Logging, graphic evaluation and interpretation of the results of work and their documentation by using IT and statistical methods. • Performance of work taking into consideration relevant norms as well as quality, safety and environmental standards.

- Appropriate written and oral command of language and specialist terminology as well as use of job-related foreign language s.

This competition takes 2.5 hours (including Health & Safety brief and report writing).

Entry criteria

Students must be enrolled on or studying toward a Level 3 qualification, or have recently gained their Level 3 qualification in the last 18 months.

Students on a relevant HE Degree (e.g. BSc Chemistry) will be in year 1 at the time of registration.

Competitors must be familiar with most of the core competence listed above.

The competition is open to any competitor 16 years and over.

This is an individual competition.

Number by location/organisation

Capacity for the competition as a whole: Max 10 competitors at the live heat

Maximum number of entries by location/organisation: 2 entries per college (individuals)

Brief

This competition consists of a laboratory practical task that will be issued at the venue on the day. Competitors will be provided with instructions for the experimental or analytical task and all materials required.

Competitors are expected to risk assess the activity and communicate this in writing or verbally. Not taking. Data analysis and reporting on results forms part of the assessment but the main focus lies in the practical skills and ability to carry out experimental or analytical laboratory work in an independent, safe and efficient manner.

Infrastructure List

You will be provided with all the required PPE, equipment and materials needed for the tasks. Computers, any specific software and other IT will also be provided if necessary. You will also be provided with a notebook and essential stationary.

You may, but don't have to, bring the following items:

- Your own (company branded) lab coat (must be clean!).
- Your own goggles (essential if you wear goggles with eye corrections).
- A scientific calculator (not mobile phone app, no formulae etc. on the cover).
- Your own stationary.

Competitors will not be permitted to use the following during the competition:

- Mobile phones or any other devices with internet access (permitted during lunch break).
- Headphones.

Safe storage space or lockers for personal items, coats, bags, etc. that are not permitted in the laboratory will be provided, however space may be limited.

If you have any allergies, e.g. to gloves, please advise the organisers well in advance so that they can arrange alternatives or grant permission for you to bring your own. It is at the discretion of the laboratory manager and lead judge to disallow competitors from entering the laboratory or exclude them from the competition, for example for any serious breaches of laboratory safety or inadequate clothing (e.g. flip-flops), or if there are health concerns.

Competition rules

Competition specific rules

See points above.

Generic competition rules:

- Mobile phones 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

Brief breakdown of marking and assessment.

All marks are objective and will be awarded by the judges as follows

Work organisation and management	10%
Communication and interpersonal skills	10%
Techniques, procedures and methods	35%
Data processing and record keeping	15%
Analysis , interpretation and evaluation	10%

Problem solving through scientific methods	10%
Trends in applied science	10%
Total	100%
Feedback and recognition	
<p>Individual and Group verbal feedback will be provided at the end of the competition. (Written feedback will not be provided)</p> <p>No results or awards will be awarded on the day as marking will be quality assured.</p> <p>Certificates of Participation will be issued on the day.</p> <p>Medallists will be invited to a Celebration Event which will be held on 19th March 2020 at Sophia Hall, Sophia Gardens, Cardiff CF11 9XR from 12pm to 5 pm, where the First, Second and Third Awards will be presented. https://www.sophiagardens.wales/venue/the-sophia-hall.html</p>	
Competition Lead	
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Briff y Gystadleuaeth

Teitl y gystadleuaeth

Technegydd Labordy

Trosolwg o'r gystadleuaeth

Mae'r gystadleuaeth hon yn asesu sgiliau a galluoedd y cystadleuwyr sy'n cychwyn ym maes technoleg labordy gwyddoniaeth. Mae'r cystadleuwyr sy'n ymgeisio yn y gystadleuaeth hon fel arfer yn hyfforddi neu'n astudio i weithio mewn labordy gwyddoniaeth. Mae disgwyl iddyn nhw feddu ar gyfres graidd o sgiliau a galluoedd technegol yr hofffen nhw eu harddangos mewn amgylchedd cystadleuol a datblygu ymhellach drwy gystadlu.

Mae'r gystadleuaeth hon yn para 2.5 awr (sy'n cynnwys sesiwn briffio lechyd a Diogelwch ac ysgrifennu adroddiad).

Cymwyseddau craidd:

Dylai cystadleuwyr sy'n cymryd rhan yn gystadleuaeth hon arddangos eu galluoedd:

- Darllen a defnyddio dogfennau technegol fel cyfarwyddiadau sy'n ymwneud â dadansoddi neu weithdrefnau, fformiwleiddiadau a manylion sylweddau, diagramau a llawlyfrau offer.
- Trin dyfeisiau, cyfarpar ac offer labordy a ddefnyddir, yn ogystal â thrin y cemegion a ddefnyddir mewn labordai drwy ddefnyddio taflenni data diogelwch a'r mesurau a'r gweithdrefnau sy'n deillio ohonynt.
- Paratoi a phrosesu samplau yn ogystal â phrosesau gwahanu ar gyfer cymysgeddau o hylifau a solidau.
- Ymgymryd â phrosesau glanhau a chrynodi fel allgyrchu, distyllu, echdynnu, anweddu a chrisialu.
- Penderfynu ar baramedrau corfforol a chysonion mater fel tymheredd, dwysedd, gwerth pH, mynegrif plygiant, pwynt toddi a dargludedd.
- Defnyddio dulliau titrimetrig a grafimetrig.
- Defnyddio dulliau cyfrannol ac electroddadansoddol fel Sbectroffotometreg, Cromatograffi, Potentiometreg a Dargludometreg
- Cofnodi, gwerthuso graffig a dehongli canlyniadau gwaith a'u dogfennu gan ddefnyddio dulliau TG ac ystadegol.
- Cyflawni gwaith gan ystyried normau perthnasol yn ogystal ag ansawdd, diogelwch a safonau amgylcheddol.

- Defnyddio iaith lafar ac ysgrifenedig briodol a therminoleg arbenigol yn ogystal â thermau o ieithoedd eraill sy'n ymwneud â'r gwaith.

Meini prawf cystadlu

Mae'n rhaid bod myfyrwyr wedi cofrestru ar gyfer cymhwyster Lefel 3 neu'n astudio ar ei gyfer, neu eu bod wedi ennill cymhwyster Lefel 3 yn ystod y 18 mis diwethaf.

Bydd myfyrwyr sy'n astudio Gradd AU berthnasol (e.e. BSc Cemeg) ym mlwyddyn 1 wrth gofrestru.

Mae'n rhaid i gystadleuwyr fod yn gyfarwydd â rhan fwyaf o'r cymwyseddau craidd a restrir uchod.

Mae'r gystadleuaeth ar agor i unrhyw gystadleuydd sy'n 16+ oed.

Cystadleuaeth unigol yw hon.

Nifer fesul lleoliad/sefydliad

Capasiti ar gyfer yr holl gystadleuaeth: Uchafswm o 10 cystadleuydd yn y cymal byw

Uchafswm o geisiadau fesul lleoliad/sefydliad: 2 gystadleuydd o bob coleg (unigolion)

Briff

Mae'r gystadleuaeth hon yn cynnwys tasgau labordy ymarferol a gyflwynir yn y lleoliad ar y diwrnod. Rhoddir cyfarwyddiadau i'r cystadleuwyr ar gyfer y dasg arbrofol neu ddadansoddol a'r holl ddeunyddiau angenrheidiol.

Mae disgwyl i'r cystadleuwyr gyflawni asesiad risg o'r gweithgaredd a'i rannu'n ysgrifenedig neu ar lafar. Cewch gymryd nodiadau. Mae dadansoddi data ac adrodd y canlyniadau'n rhan o'r asesiad ond y prif ffocws yw'r sgiliau ymarferol a'r gallu i gyflawni gwaith labordy arbrofol neu ddadansoddol mewn modd annibynnol, diogel ac effeithlon.

Rhestr Seilwaith

Darperir yr holl PPE, offer a deunyddiau angenrheidiol ar gyfer y tasgau. Darperir cyfrifiaduron, unrhyw feddalwedd benodol a TG arall os oes angen. Byddwch hefyd yn cael llyfr nodiadau ac offer ysgrifennu angenrheidiol.

Cewch hefyd ddod â'r eitemau canlynol gyda chi (ond nid yw'n angenrheidiol):

Eich cot labordy (lân!) eich hun (gyda logo eich cwmni).

- Eich gogls eich hun (angenrheidiol os ydych chi'n gwisgo gogls sy'n cywiro eich llygaid).
- Cyfrifiannell wyddonol (dim ap ffôn symudol, dim fformiwlâu a.y.y.b. ar y clawr).
- Eich offer ysgrifennu eich hun.

Ni chaniateir i gystadleuwyr ddefnyddio'r offer canlynol yn ystod y gystadleuaeth:

- Ffonau symudol neu unrhyw ddyfeisiau eraill sy'n gallu cyrchu'r we (caniateir yn ystod yr awr

ginio).

- Clustffonau.

Darperir lle storio diogel neu loceri ar gyfer eitemau personol, cotiau, bagiau a.y.y.b. na chaniateir yn y labordy, ond efallai na fydd lle i bethau pawb.

Os oes gennych unrhyw alergeddau e.e. i fenyg, dywedwch wrth y trefnwyr ymhell ymlaen llaw fel y gallan nhw wneud trefniadau eraill neu roi caniatâd i chi ddod â'ch rhai eich hun. Cyfrifoldeb rheolwr y labordy a'r prif feirniad yw penderfynu gwahardd cystadleuwyr rhag dod i mewn i'r labordy neu eu diarddel o'r gystadleuaeth, e.e. am dorri rheolau diogelwch y labordy neu am ddillad anaddas (e.e. fflip-fflops), neu os oes pryderon am iechyd.

Rheolau'r gystadleuaeth

Rheolau penodol y gystadleuaeth

(Gweler y briff uchod)

Rheolau cyffredinol y gystadleuaeth :

- Dylid diffodd ffonau symudol yn ystod y gystadleuaeth.
- Ni chaniateir gwranddo ar gerddoriaeth gyda chlustffonau yn ystod y gystadleuaeth.
- Dylid cyfeirio unrhyw gwestiynau yn ystod y gystadleuaeth at y panel beirniaid.
- Ni ddylai'r cystadleuwyr gyfathrebu gyda chystadleuwyr eraill yn ystod y gystadleuaeth.
- Cyfrifoldeb pob cystadleuydd fydd cyrraedd ar amser ar gyfer pob rhan o'r gystadleuaeth. Pe baech yn cyrraedd yn hwyr, ni roddir amser ychwanegol ichi.

Pe bai rhyw wall technegol ar eich offer, dylid rhoi gwybod i'r panel beirniaid yn syth. Bydd amser ychwanegol yn cael ei roi os bydd y gwall y tu hwnt i reolaeth y cystadleuydd

Marcio ac asesu

Manylion cryno o'r marcio a'r asesu.

Mae'r holl farciau'n wrthrychol a chânt eu dyfarnu gan y beirniaid fel a ganlyn

Trefnu a rheoli gwaith	10%
Sgiliau cyfathrebu a rhyngbersonol	10%
Technegau, gweithdrefnau a dulliau	35%
Prosesu data a chadw cofnodion	15%
Dadansoddi, dehongli a gwerthuso	10%
Datrys problemau gyda dulliau gwyddonol	10%
Tueddiadau gwyddoniaeth gymhwysol	10%
Cyfanswm	100%

Adborth a chydabyddiaeth

Bydd adborth llafar, yn unigol ac mewn grŵp, yn cael ei roi ar ddiwedd y gystadleuaeth. (Ni roddir adborth ysgrifenedig)

Ni fydd unrhyw ganlyniadau na gwobrau'n cael eu dyfarnu ar y diwrnod oherwydd bydd angen sicrhau ansawdd y marcio.

Bydd Tystysgrifau Cyfranogi'n cael eu dosbarthu ar y diwrnod.

Bydd enillwyr medalau'n cael eu gwahodd i Achlysur Dathlu a gynhelir ar 19 Mawrth 2020 yn Neuadd Sophia, Gerddi Sophia, Caerdydd CF11 9XR rhwng 12pm a 5pm, lle y bydd y Gwobrau Cyntaf, Ail a Thrydydd yn cael eu cyflwyno. <https://www.sophiagardens.wales/venue/the-sophia-hall.html>

Arweinwyr y Gystadleuaeth

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