



Training Catalogue 2024



The National Institute for
Bioprocessing Research
and Training (NIBRT)

About Us

The National Institute for Bioprocessing Research and Training (NIBRT) is a global centre of excellence for training and research in biopharmaceutical manufacturing.

Based in Dublin, Ireland and with a network of international partners, NIBRT provides a wide range of industry leading training solutions across all levels.



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Why Train with NIBRT?

Common to all therapeutic products is the importance that skills, training and knowledge play in successful outcomes. Ensuring the competency level of the biopharmaceutical manufacturing workforce is more important than ever if the industry is going to address current and future opportunities.



As a recognised global leader in biopharma manufacturing training, NIBRT has cultivated a wealth of knowledge over many years, developing the skills, training and knowledge required by industry.

Our Commitment to Excellence is Built on Several Key Pillars:


- **State-of-the-Art Facilities:** From our 8,300m² simulated GxP facility. Experience best-in-class equipment and real-life production scenarios.
- **World-Class Instructors:** Benefit from instruction by experienced professionals and subject matter experts who bring real-world knowledge and expertise to training delivery.
- **Comprehensive Curriculum:** Developed in response to industry requirements. Core curriculum covering drug substance, drug product manufacturing, quality control, cell/gene therapy and vaccine manufacturing.
- **Research and Innovation:** NIBRT is at the forefront of research and innovation in biopharmaceutical manufacturing, ensuring that trainees stay current with the latest technological advancements.
- **Flexible Training Options:** online (distance learning), onsite and on-demand learning through NOA platform.
- **Global Reputation:** NIBRT's reputation as a world-class training facility attracts trainees from across the globe, offering a diverse and enriching learning environment.
- **Customised Training:** NIBRT specialises in designing, developing and delivering customised training programmes tailored to meet the specific requirements of our clients.
- **Continuous Improvement:** NIBRT is committed to continually improving its training offerings, ensuring that trainees receive the most current and relevant education available in biopharmaceutical manufacturing.


NIBRT Training by Numbers 2023


4,820
Trainees


30,000
Training Days
Delivered


105
Employees


5,600
NIBRT Online
Academy Users


725
Springboard+
Students


80
Number of Countries
using NOA

Which Training Programme Should I Choose?

NIBRT provides a broad range of biopharma training options to cater to the diverse learning requirements of our clients.

Whether you are an individual or an organisation, we offer a host of training solutions delivered in various flexible formats to meet your unique needs.



"I have been in IT for over 30 years and dedicated to Lab IT for the past 12, and so when we decided to look for world-class training my first thought was NIBRT. NIBRT is unique in its facilities and approach and that's why we are here."

Neil Whitworth, Director of Lab Support Services, Zifo R&D Solutions

Custom Training

Tailored biopharma training programmes customised to meet the unique requirements of our clients.

These programmes can be delivered on-site at NIBRT, online, or at an external facility, with course durations ranging from 1-2 days to in-depth, long-running programmes.



Short Courses

Short (1-5 days) classroom, practical, or live online sessions focusing on specific biopharma topics.

These courses are open for all to book on predetermined dates, subject to availability.



On Demand E-Lessons (NOA)

Access pre-recorded modules covering a broad range of fundamental biopharma topics.

Learn at your own pace and convenience, with course modules typically spanning 45 minutes to 1 hour.



University Courses

NIBRT offers a selection of certificate, degree, and master's programmes in partnership with various Irish universities.

Course content is delivered by these universities, with practical components conducted at the NIBRT facility.



Funded University Courses – Springboard+

These programmes, funded at a rate of 90-100%, focus on high-demand biopharma skills areas. Course content is delivered by universities with practical elements at the NIBRT facility.

These highly subsidised programmes are co-funded by the Government of Ireland and the European Union.



NIBRT Training Facilities

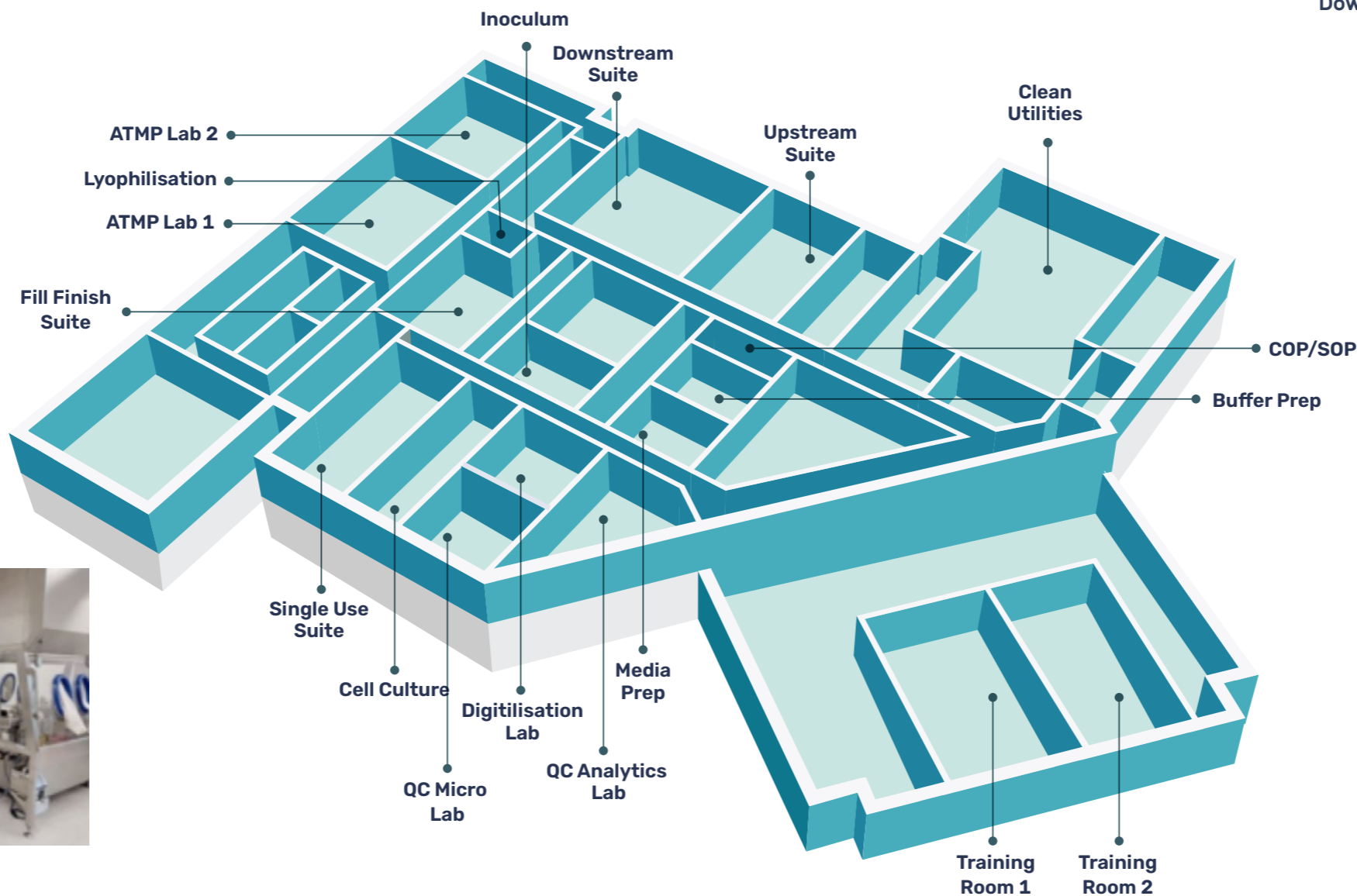


Inoculum Tour



Downstream Suite Tour

NIBRT is an 8,300m² training and research facility. Our state-of-the-art training facilities offers trainees a realistic simulated training environment not previously possible anywhere in the world. [Click on link under photo for a virtual tour.](#)



Clean Utilities Tour



Fill Finish Suite Tour



Upstream Pilot Plant Tour



Cytiva Single Use Suite Tour



Foyer Tour



Training Room 1 Tour

NIBRT Training Team

NIBRT’s training team has a broad range of industry and academic experience.

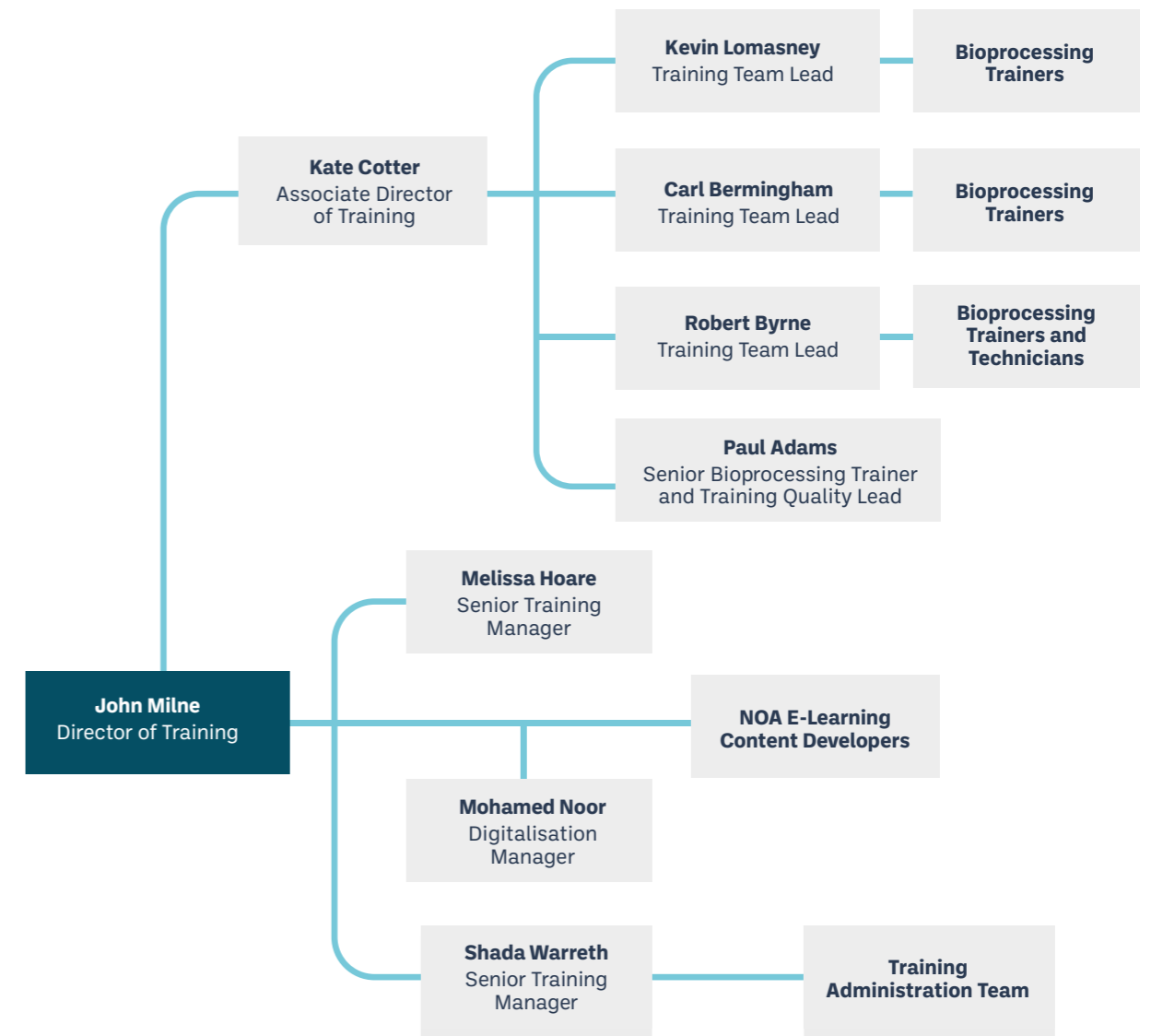


“I want to express our heartfelt gratitude for the incredible training sessions you provided to our group. The knowledge and expertise from your trainers were truly exceptional and greatly benefited our team. The training sessions exceeded our expectations, and our team members found them extremely valuable for enhancing their skills and knowledge in the field.”

Fernanda Hussein, Global Commercial Training Manager, Terumo Blood and Cell Technologies

Our team is dedicated to equipping professionals with the skills and knowledge needed to thrive in the evolving biopharma sector. With a commitment to excellence, our experienced instructors blend theoretical expertise with practical insights, ensuring a personalised learning experience for each participant.

- **Experienced Instructors:** Our trainers have extensive biopharmaceutical expertise.
- **Practical Insights:** They bring real-world industry experience to the classroom.
- **Personalised Learning:** Small class sizes ensure individualised attention.
- **Cutting-Edge Knowledge:** We stay up-to-date with industry advancements.
- **Proven Success:** NIBRT’s training team has a strong track record of success.



Customised Training

NIBRT specialise in designing customised training solutions for organisations who require a tailored training programme for their team. Courses are delivered at a time and location of the client's choosing by NIBRT's highly experienced trainers.



Our Clients



Customisation Process

Step 1 Consultation

We begin by consulting with you to identify your key training goals, required learning outcomes and trainee profile.

Step 2 Course Design

Select Topics: Choose relevant training topics from NIBRT's comprehensive training curriculum (click [here](#) for curriculum).

Agree Course Duration: Determine the course duration, which can vary from a single day to an in-depth long-running programme.

Choose Delivery: Clients have the flexibility to select their preferred delivery location for the course, which can include:

- NIBRT's state-of-the-art GxP simulated facility
- Their own site
- Online delivery
- A combination of the above options

Step 3 Course Approval and Booking

- Confirm course costs based on the agreed course design
- Select course dates that align with your schedule and objectives
- Formalise the course confirmation and generate the necessary Purchase Order (PO)
- NIBRT course administrators will liaise with your team to provide comprehensive course details and ensure a smooth process

Step 4 Course Delivery

The customised course is then delivered according to the agreed course design.

Step 5 Evaluation and Follow-Up

Upon completion of course we gather feedback from participants and issue certificates of completion.

Short Courses

NIBRT's short courses provide access to cutting-edge facilities and equipment for hands-on sessions, designed to address real challenges in the biopharma manufacturing industry. These intensive programmes offer flexible options for both online and onsite training.

Biopharma Manufacturing Operations



Introduction to Upstream Processing Operations

Full course: online and onsite training, with an option for online-only

Course 1:	06-07 February (Online)	12-13 February (NIBRT)
Course 2:	10-11 June (Online)	18-19 June (NIBRT)
Course 3:	02-03 September (Online)	09-10 September (NIBRT)
Course 4:	02-03 December (Online)	09-10 December (NIBRT)



Introduction to Downstream Processing Operations

Full course onsite at NIBRT

Course 1:	14-16 February
Course 2:	24-26 June
Course 3:	11-13 September
Course 4:	11-13 December



Introduction to Fill Finish Operations

Full course: online and onsite training, with an option for online-only

Course 1:	10-11 June (Online)	17-18 June (NIBRT)
Course 2:	17-18 September (Online)	23-24 September (NIBRT)
Course 3:	04-05 December (Online)	11-12 December (NIBRT)



Introduction to Lyophilisation for Biopharmaceutical Fill-Finish Operations

Full course onsite at NIBRT

Course 1:	13-14 May
Course 2:	07-08 October

Introduction to Commissioning, Qualification, and Validation

Full course onsite at NIBRT

Course 1:	08-09 February
Course 2:	12-13 June
Course 3:	04-05 September
Course 4:	05-06 December

Short Courses

Quality Control



Introduction to QC Testing for Protein Based Therapies

Full course: online and onsite training, with an option for online-only

Course 1:	08-10 April (Online)	15-16 April (NIBRT)
Course 2:	01-03 October (Online)	09-10 October (NIBRT)

QC Micro Skills for Biopharma

Full course: online and onsite training, with an option for online-only

Course 1:	13-15 March (Online)	21-22 March (NIBRT)
Course 2:	16-18 October (Online)	23-24 October (NIBRT)

Short Courses

Advanced Therapies



Introduction to ATMPs/CGT

Full course onsite at NIBRT

Course 1:	11-12 March
Course 2:	16-17 September

Introduction to Cell Therapy

Full course onsite at NIBRT

Course 1:	22-24 April
Course 2:	13-15 November



Fundamentals of Vaccine Manufacture

Full course: online and onsite training, with an option for online-only

20-21 May (Online)	28-29 May (NIBRT)
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Introduction to Gene Therapy

Full course onsite at NIBRT

Course 1:	22-24 May
Course 2:	02-04 December

Short Courses

Digitalisation Courses



Introduction to Digitalisation

Full course onsite at NIBRT

Course 1:	23 January
Course 2:	09 May
Course 3:	27 August
Course 4:	03 December



Introduction to Data Analytics

Full course onsite at NIBRT

Course 1:	12-13 February
Course 2:	28-29 May
Course 3:	14-15 August

Advanced Data Analytics

Full course onsite at NIBRT

Course 1:	06-08 March
Course 2:	12-14 June
Course 3:	11-13 September
Course 4:	25-27 November

Masterclass in Machine Learning

Full course onsite at NIBRT

Course 1:	22-24 April
Course 2:	15-17 July
Course 3:	21-23 October

Short Courses

Short Courses with NIBRT Partners



CELLT2: Advanced Cell Therapy Technology with Cytiva

Full course onsite at NIBRT

Course 1:	20-22 February
Course 2:	08-10 October



Introduction to Biopharmaceutical Operations with Engineers Ireland

Online Course:

20-24 May



Introduction to Bioprocessing for Engineers with Engineers Ireland

Online Courses:	NIBRT Onsite Courses:
1. 25 January	1. 25 April
2. 22 February	2. 26 September
3. 21 March	
4. 23 May	
5. 20 June	
6. 24 October	
7. 21 November	

Inspired Pharma – Pharmaceutical GMP Auditor/Lead Auditor Training.



Full course onsite at NIBRT

17-21 June (NIBRT)



STERIS Master Class: Applied Cleaning Validation Practices

Full course onsite at NIBRT

9-10 April 2024
15-16 October 2024



Managing Asset Reliability: Biopharma Process Equipment with Pro-Reliability Solutions

Full course onsite at NIBRT

20-21 February

NIBRT Online Academy (NOA)

NOA is an industry leading, on-demand platform for key aspects of biopharma manufacturing.

noa.nibrt.ie

Click here for full course list



What NOA Provides to Trainees and Organisations

Elevate Your Biopharma Skills: NOA offers cutting-edge, industry-focused courses designed to provide you with the fundamental knowledge and concepts needed to understand the production processes of protein, and cell and gene based therapies.

Expert-Led Learning: all courses are developed and delivered by industry experts in bioprocessing training. NIBRT courses are created in the NIBRT facility and delivered by our own trainers. NOA also provides selected content from Skillpad, Cytiva and QRMI.

Entire Bioprocessing Workflow: content covers the full range of bioprocessing activities from cell culture to formulation and fill finish. Learn the entire process or focus in on an area of interest.

Digital Training Tools: Elevate your learning with Immerscio training courses, now available on NOA. Curriculum includes cutting-edge digital training tools such as virtual and augmented reality.

Access Anytime, Anywhere: NOA's flexible online platform lets you access top-notch biopharma education from the comfort of your home or office. Study at your own pace, wherever you are in the world.

Stay Current: the biopharma industry is ever-evolving. NOA ensures you stay up-to-date with the latest trends, technologies, and regulatory changes, keeping your skills sharp and in demand.

Career Advancement: Jump ahead in your career with NOA's comprehensive curriculum. Whether you're new to biopharma or a seasoned pro, our courses can help you excel in your current role or transition into exciting new opportunities.

Key Benefits for Bulk Licence Purchases

- **Significant Discount** – purchases of 201 or more licences avail of a discount starting at 44% and increasing in step with the licence volume
- **Extended Access Period** – all trainees can access the courses for 12 months
- **Single Sign On (optional)** – remove the need for your trainees to create accounts on NOA and allow them direct access from your own LMS
- **Manage Seats (optional)** – take control of your licenses and enrol your trainees when needed during the access period
- **Trainee Analytics** – download real time progress reports for your group, or individual trainees, to monitor their progress and your return on investment



When it comes to online biopharma manufacturing training, NOA is the clear leader. The courses are developed within NIBRT's state-of-the-art facility, ensuring an authentic learning experience. We trust NOA to deliver high-quality training."

Simon Covey, Training Lead
WuXi Biologics

Start Training Now - NOA Licences

To take an individual course now, simply visit the NOA website and purchase the licence which will grant you three months of access. For wider deployment of NOA licences to entire teams, departments, or organizations please contact NIBRT directly.

noa.nibrt.ie

email: support.noa@nibrt.ie

Take a free demo of our Bioreactor Operations course
[CLICK HERE](#)

University Programmes

NIBRT is pleased to partner with Irish universities to provide a range of programmes at both undergraduate and postgraduate level.



“Since my completion of the course, I am very pleased to say that I have secured employment in the industry with Regeneron in Limerick. The role is Associate Biotech Manufacturing Specialist, is onsite in their facility in Raheen and is a full time position. I will start with them on October 23rd. The course delivery, presentation and content covered was top class.

Fintan Heffernan, Student
L9 Cert in CQV with ATU Sligo and NIBRT



“I have attended NIBRT on many occasion, and NIBRT has been central to my learning goals since I undertook to upgrading my qualifications through IT Sligo now (ATU Sligo) and more recently through TU Dublin. The level of professionalism knowledge and expertise, and the learning environment provided by NIBRT is exceptional. The NIBRT approach to learning is a hands on one, that is set in a fully simulated biopharmaceutical environment. This makes learning totally visual and makes learning easy no matter what your level of experience is. I recommend NIBRT as a state of the art learning environment that anyone in the biopharmaceutical industry will benefit from.”

Declan Harrington, Student,
ATU Sligo and TU Dublin in partnership with NIBRT

MSc Programmes

NEW! - MSc in Validation and Digitalisation Technologies

The MSc in Validation and Digitalisation Technologies aims to provide scientists and engineers with a comprehensive grounding in critical aspects of biopharmaceutical support activities and biopharma related aspects of Industry 4.0, with a specific focus on equipment and facility validation, and digital technologies.



NEW! - MSc in Bio-Industry 4.0

This MSc is aimed at manufacturing, quality, engineering and site management personnel who are looking to increase their understanding and application of the latest digital trends and technologies in the Bio-Industry 4.0 field.



NEW! - MSc in Commissioning, Qualification and Validation for Biologics

This MSc provides a pathway for qualified graduates who wish to pursue a career in validation and is designed to provide students with the knowledge required to be involved in the commissioning of equipment and utilities used in biopharmaceutical plants.



NEW! - MSc in ATMP Technology and Manufacturing

This new MSc in ATMP Technology and Manufacturing aims to provide scientists and engineers with a comprehensive grounding in critical aspects of ATMP cell therapy and vector manufacturing and quality control / quality affairs.



NEW! - MSc in ATMP Cell Manufacturing

This programme is designed to provide students with a comprehensive grounding in critical aspects of ATMP cell therapy and quality control / quality affairs.



MSc in Biopharmaceutical Science

This post-graduate programme in biopharmaceutical science aims to provide students with a comprehensive grounding in critical aspects of biopharmaceutical processing and their support services.



MSc in Biopharmaceutical Processing (by research)

This MSc in Biopharmaceutical Processing involves study of the discovery, development and processing of biopharmaceutical drug products. Students complete a range of online modules that have been designed in conjunction with the biopharmaceutical industry, while also completing a significant research project in an applied biopharma area.



MEngSc in Biopharmaceutical Engineering

This advanced postgraduate degree programme offers a combination of lectures, tutorials, practical sessions and project work delivered by university and industry experts.



MSc in Bioprocess Engineering

The MSc is an interactive and dynamic programme that will develop students' knowledge and appreciation of the conceptual and factual basis for bioprocess design and operation.



MSc in Biopharmaceutical Technology

The MSc in Biopharmaceutical Technology builds on biotechnology expertise and industry links that have been developed over the past 20 years and includes classes and laboratory sessions, site visits to local biopharmaceutical plants and guest lectures, in addition to practical training at NIBRT.



MEngSc Pharmaceutical & Biopharmaceutical Engineering

The MEngSc in Pharmaceutical and Biopharmaceutical Engineering is a part-time modular degree where students have the opportunity to gain a formal qualification in areas of particular topical interest to the bio/pharmaceutical industry. The programme is designed to allow students to upskill their competence for these important industrial sectors, including issues such as product containment, powder/particle technology, design of API and secondary production facilities, current Good Manufacturing Practice (cGMP), design of classified facilities, aseptic processing facility design, utilities and services, data analysis and process validation.



MSc Immunotherapeutics

The MSc in Immunotherapeutics is an innovative and multi-disciplinary full time master's programme specifically designed for biological, medical, dentistry, engineering and veterinary graduates who wish to enter the pharmaceutical industry



Certificate Programmes	Level	ECTS Credits*
Certificate in Bioindustry 4.0	9	30
Certificate in Biopharmaceutical Science	9	30
Certificate in Biopharmaceutical Processing	9	30
Certificate in Bioanalytical Techniques	9	10
Certificate in Commissioning, Qualification and Validation for Biologics	9	30
NEW! - Certificate in ATMP Cell Manufacturing	9	30
Certificate in Biopharmaceutical Science	8	30
Certificate in Bioprocessing Technologies	8	30
Certificate in Biopharmaceutical Processing	7	30
Certificate in Bioprocess Engineering	7	30
Certificate in Biopharmaceutical Processing	6	30
Certificate in Aseptic Biopharma Operations	6	30

Major Award Programmes	Level	ECTS Credits*
BSc (Hons) in Biopharmaceutical Science	8	60
BSc in Biopharmaceutical Science	7	60
Postgraduate Diploma in Science in ATMP Technology and Manufacturing	9	60
Postgraduate Diploma in Science in Validation and Digitalisation Technologies	9	60

Springboard+

Springboard+ is an upskilling initiative in higher education which offers courses at certificate, degree and master's level leading to qualifications in areas where there are employment opportunities in the economy.



Springboard+ and HCI Pillar 1 are co-funded by the Government of Ireland and the European Union.



Springboard+ is co-funded by the Government of Ireland, via the National Training Fund, and the European Union.

Human Capital Initiative Pillar 1 is funded by the National Training Fund.

NIBRT and Springboard+

NIBRT's Springboard+ programmes are designed in conjunction with the biopharmaceutical industry and aim to provide participants with the knowledge and skills required to become part of the biopharmaceutical and biotechnology workforce.

- NIBRT Springboard+ graduates have a strong track record of obtaining employment in the biopharmaceutical sector.
- All lectures are delivered online to provide a flexible learning environment, while practical placements in NIBRT's award-winning pilot plant facility provide candidates with the practical skills and experience required by industry.
- Modules in career support and development are provided.
- Instructors have extensive experience in training in the biopharmaceutical industry.

The list of 2023/2024 NIBRT programmes is detailed below. The majority of courses commenced in September 2023 at the beginning of the academic year. Courses starting in January 2024 are highlighted.

- L9 Postgraduate Diploma in Validation and Digitalization
- L9 Postgraduate Diploma in Validation Technology
- L9 Postgraduate Certificate in Commissioning, Qualification and Validation
- L8 Certificate in Biopharmaceutical Science
- L7 Certificate in Biopharmaceutical Processing
- L7 Certificate in Bioprocess Engineering
- L6 Certificate in Aseptic Biopharmaceutical Operations
- L6 Certificate in Biopharmaceutical Processing – **starting in January 2024**

How Much Does the Programme Cost?

- All courses are free for those that are unemployed and in receipt of an eligible social welfare payment.
- All L6 programmes are free, regardless of whether someone is employed or unemployed.
- For L7 - L9 courses, employed participants pay 10% of course cost with 90% funded.

Application Process

All applications can be made on www.springboardcourses.ie. Please contact springboard@nibrt.ie with any queries you may have.



"Since completing the course I have started working as an operator in Eli Lilly in Kinsale. My participation in the course definitely helped me secure this job and give me an advantage over other applicants as I had gathered some decent knowledge of the pharma industry. I had been working construction previous to doing the course so I'm gone in a completely different direction since completing."

*Wayne Hogan, Student,
L6 Certificate in Biopharma course with ATU Sligo and NIBRT.*

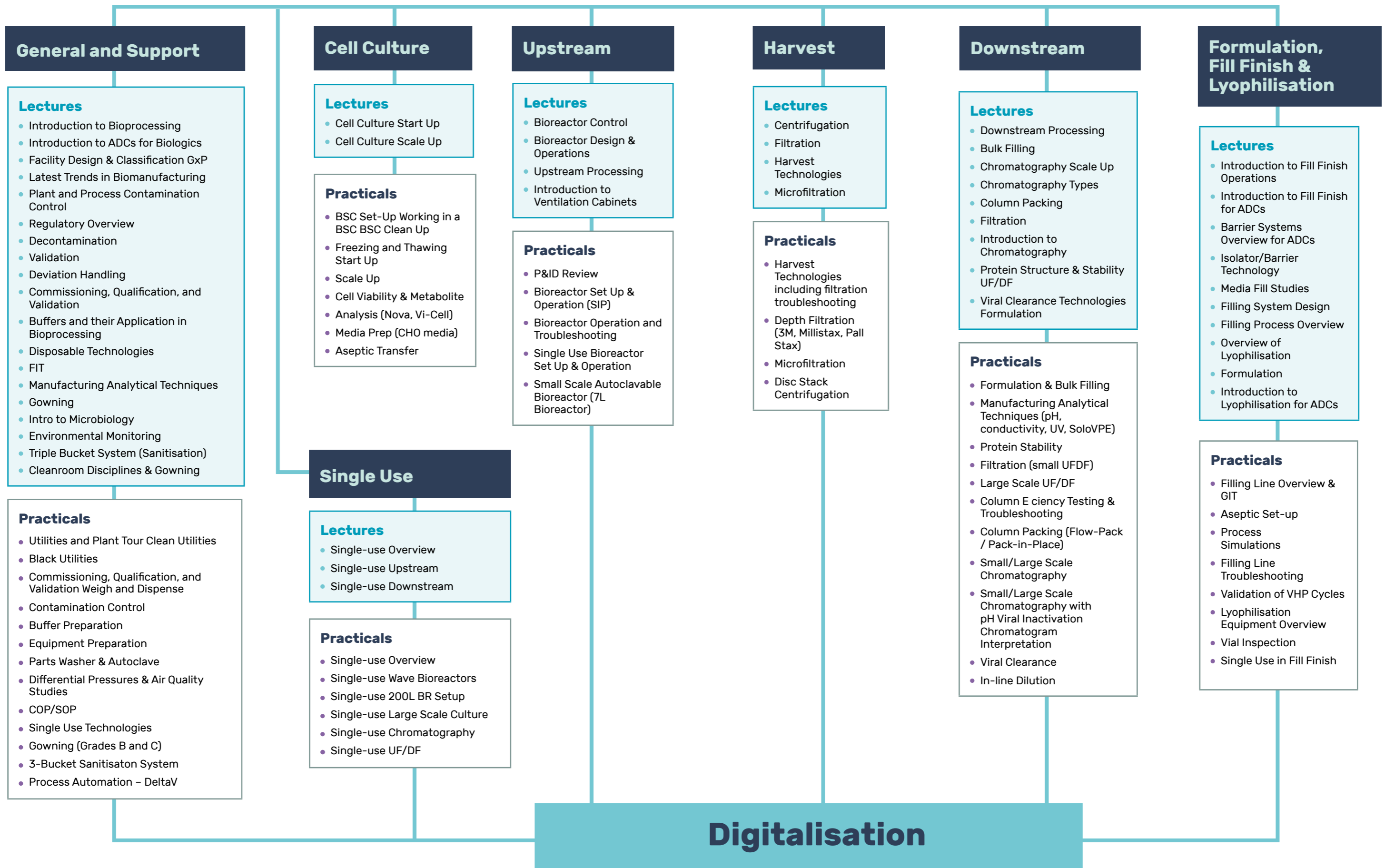


"The course has secured my position in work and for any future potential opportunities. It has also opened new prospects within the pharmaceutical industry. I will definitely be progressing with further development and education in 2024 thanks to springboard and NIBRT."

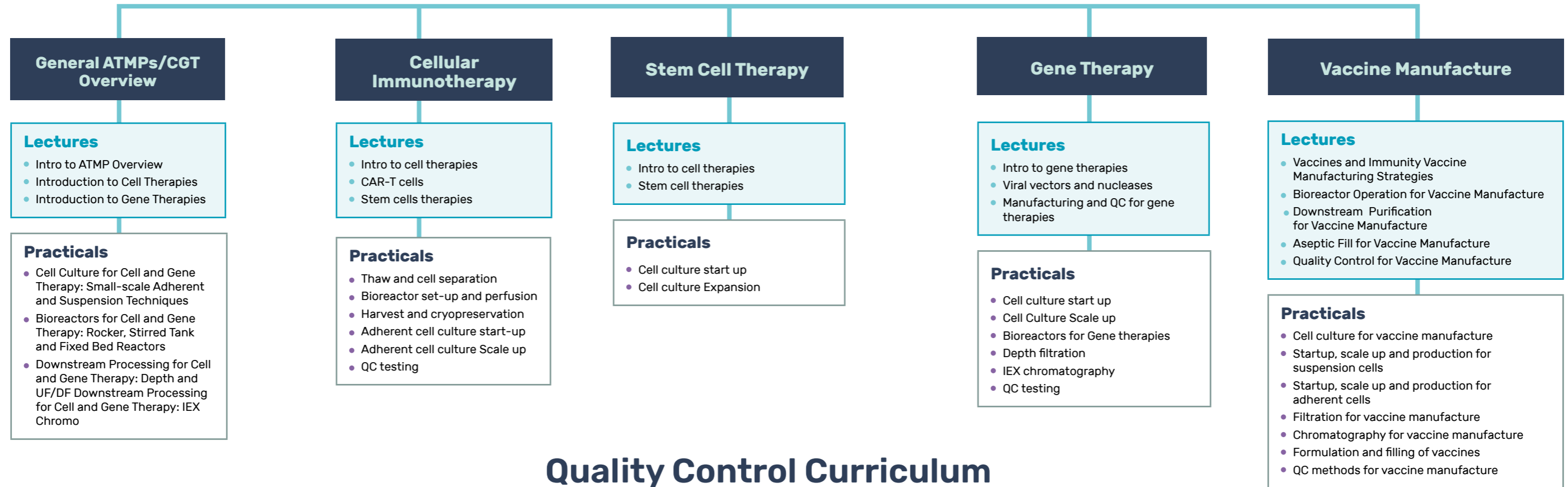
*Liam Murphy, Student,
Springboard+ funded course.*



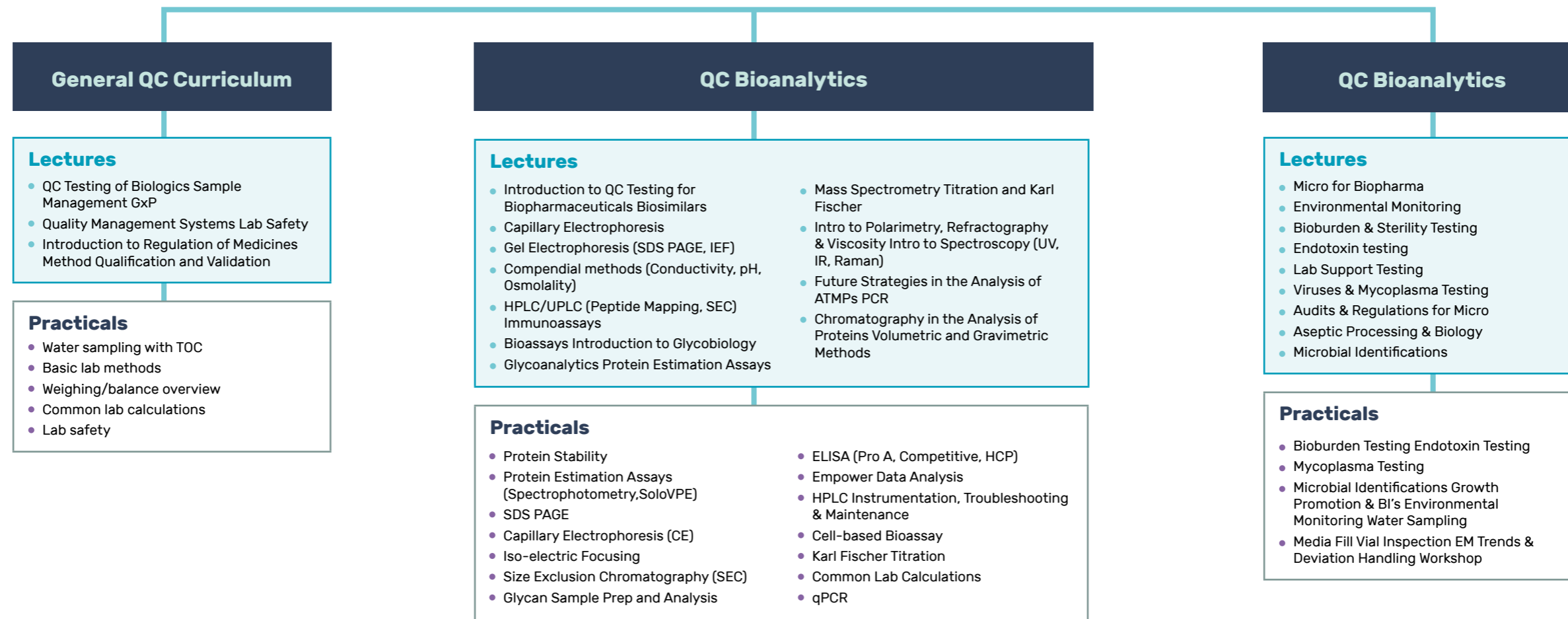
Biopharmaceutical Manufacturing Curriculum



Advanced Therapies Manufacturing Curriculum



Quality Control Curriculum



Global Partner Programme

The NIBRT Global Partner Programme supports an international alliance of leading training and education organisations to help address the global shortage of a skilled biopharma workforce.

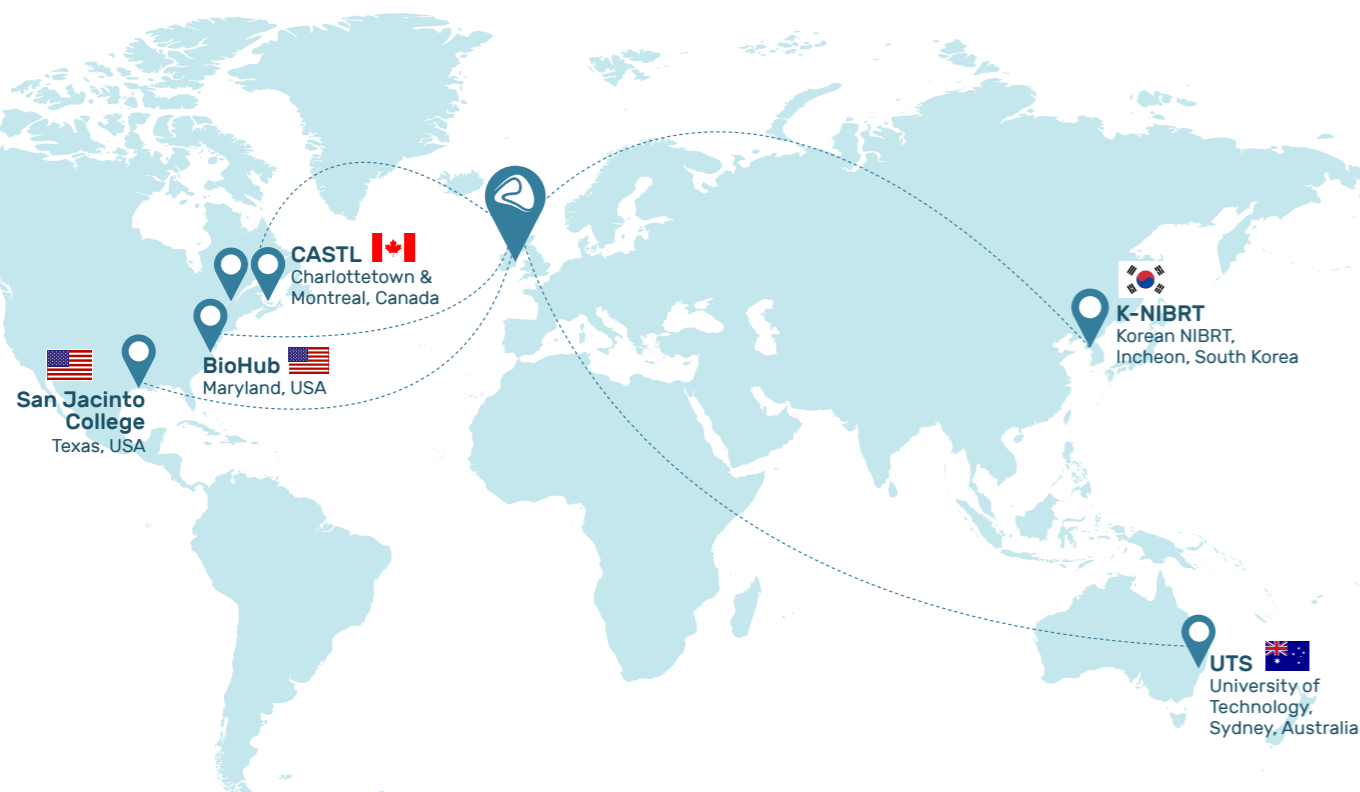
The Global Partner Programme outlines a flexible, phased approach to provide training and education capability in a Partner's region. The programme operates on a franchise type model, where NIBRT can provide set-up and ongoing support to Partners.

Support to partners includes:

- Facility design
- Equipment list
- Business and operating model development
- Branding and marketing
- License of NIBRT's award winning curriculum
- Curriculum design, development and delivery
- Train-the-Trainer

NIBRT currently has Global Partners in Canada, USA, Australia and South Korea.

- CASTL, Canada
- Korean-NIBRT (K-NIBRT), South Korea
- BioHub Maryland, United States
- Biologics Innovation Facility, Australia
- San Jacinto College, United States



Canadian Alliance for Skills and Training in Lifesciences (CASTL), Canada

The Canadian Alliance for Skills and Training in Life Sciences offers industry-informed programming, where learners gain knowledge and training valued by today's bioscience industry, and companies get access to career-ready talent.

CASTL delivers NIBRT's training designed specifically for the biopharmaceutical sector in Canada within CASTL's three learning streams: New Skilling, Reskilling and Upskilling. CASTL opened its first training facility in Charlottetown in 2022 and launched the latest Montreal facility in November 2023.

As part of this partnership, CASTL has access to the NIBRT curriculum, collaborate on curriculum design, access new courses, and partners in the development of new Canadian biopharmaceutical skills and training centres.

CASTL offers multiple applied learning streams for individuals to acquire the academic knowledge, and technical and professional skills to have a successful career in life sciences.



Website: www.castlcanada.ca

Email: info@castlcanada.ca



Korean-NIBRT (K-NIBRT), Incheon, South Korea

In July 2021, NIBRT announced a new global partnership with the Korean-NIBRT (K-NIBRT) to develop a world class biopharma manufacturing training and research centre in Incheon, South Korea.

K-NIBRT will develop into Korea's bioprocessing workforce development institute by licensing NIBRT's world-leading training and education curriculum in biopharmaceutical manufacturing.

The K-NIBRT facilities are scheduled to open in 2024 with the vision of establishing the leading biopharmaceutical manufacturing training in the Asia-Pacific region.

Before the official opening of the K-NIBRT facilities, training programmes commenced at Yonsei University's International Campus in September 2021.



Website: www.knibr.com
Email: knibr@yonsei.ac.kr



BioHub Maryland, Maryland, USA

BioHub Maryland is accelerating the life sciences industry for companies and career seekers to expand the state's global innovation advantage.

NIBRT formed a partnership with BioHub Maryland in November 2023. The partnership will provide BioHub Maryland with exclusive access to NIBRT's licensed curriculum in the National Capital Region of the United States and will upskill thousands of Marylanders to sustain industry's growth.

An initiative of the Maryland Tech Council, the largest technology and life sciences trade association in the state, BioHub Maryland helps residents of all backgrounds pursue rewarding careers in life sciences by offering skills training, career resources, and access to 1,200+ job openings in life sciences. BioHub Maryland also helps life sciences companies at every stage grow by showcasing their career opportunities, training the next generation of life sciences talent, and providing strategic resources for raising capital.



Website: www.biohubmaryland.com
Email: info@biohubmd.com



Biologics Innovation Facility (BIF), Sydney, Australia

An alliance agreement between University of Technology Sydney (UTS) and NIBRT to deliver selected NIBRT courses utilising the purpose built \$11.5m UTS Biologics Innovation Facility (BIF) launched in July 2019.

The UTS Biologics operation, designed for practical vocational and professional training, is a strategic investment between UTS and the NSW Government aimed at building a future workforce with high quality transferable STEM skills for the biopharma industry.

BIF replicates the NIBRT's Irish facility including separate teaching and process spaces and a full range of single-use upstream and downstream equipment, giving operators and technicians training opportunities ranging from fundamental sterile production techniques to complex biomanufacturing processes in a GMP environment.

Website: www.uts.edu.au/bif

Email: biologicsinnovationfacility@uts.edu.au



San Jacinto College, Texas, USA

San Jacinto College and NIBRT formed a partnership in October 2023 making San Jac the exclusive provider of NIBRT-licensed training in the southern part of the United States. The new training center will offer regional biopharmaceutical training for new hires quickly, safely, and for a lower cost.

The biotechnology program will begin at the San Jacinto College South Campus in January of 2024 and will initially offer an onboarding certificate to equip new biomanufacturing professionals with the skills and knowledge they need to seamlessly enter the field. Future training offerings will encompass all aspects of biomanufacturing, specialized instrumentation, equipment training, and advanced techniques.

San Jacinto College will open The Center for Biotechnology, on the San Jacinto College Generation Park Campus in the first quarter of 2025. This state-of-the-art facility will provide comprehensive, hands-on training with realistic good manufacturing practices (GMP) simulated environments. The Center will offer an associate of applied science degree in biomanufacturing technology, and shorter credentials for post-graduates, to meet workforce needs.

Website: www.sanjac.edu

Email: christopher.wild@sjcd.edu

NIBRT's New €21m Advanced Therapies Site Launching in 2024

This expansion will provide additional capability for the delivery of training programs supporting our new curriculum in Advanced Therapy Medicinal Products (ATMP) and vaccines with accompanying new laboratory space for our research teams.

Our developing Advanced Therapies training curriculum will encompass a blended approach of theory and practical sessions related to the manufacturing of cell & gene therapies and vaccines.

A key focus of our offering to our clients in this exciting area will be on the delivery of competency-based hands-on practical sessions utilising best-in-class equipment and facilities.



Ireland is fast becoming a world leader in advanced therapeutics, the really high value, highly skilled work involved in making new vaccines and new treatments for rare and devastating diseases. In order to keep pace with what is always going to be a fast-developing area, we need to continuously invest in cutting-edge research and training for our workforce, so they can compete with the best on an international stage. So, I'm really happy to announce the start of this expansion today. The Government is investing €21m, which will give us five new research labs, two new training suites and accommodate 25 new researchers. The work being done here will make a real difference to thousands of people's lives."

Taoiseach, Leo Varadkar



Case Study

Watson-Marlow Fluid Technology Solutions Training Experience at NIBRT

Watson Marlow Fluid Technology Solutions (Watson-Marlow), is a globally renowned company specialising in the design and manufacture of high-quality fluid handling solutions. With a strong focus on bioprocessing and the biopharmaceutical industry, the company provides innovative solutions that play a critical role in various stages of biopharmaceutical manufacturing.



What Training Solutions did NIBRT Provide?

Watson-Marlow's team first engaged in a 3-day training programme at NIBRT 'Introduction to Bioprocessing'. The training schedule included theoretical sessions on biopharmaceutical manufacturing, upstream and downstream processing, as well as practical hands-on sessions covering disposable technologies, bioreactors, harvest equipment, filtration, and chromatography.

In addition, Watson-Marlow's Internal Design Team participated in a 2-day course on Cell and Gene Therapies (CGT). The course provided an overview of CGT's development and manufacture processes and the unique challenges they present to manufacturers. The team have further NIBRT courses scheduled for 2024.

Outcomes:

Increased Industry Understanding:

the combination of theory and practical experience allowed the participants to gain a holistic overview of key biopharmaceutical production operations.

Enhanced Product Knowledge:

the training provided Watson Marlow's team with valuable insights into how their fluid handling products are utilised throughout the biopharmaceutical production process, including specific challenges Cell and Gene Therapies.

Specialised Insights into Biopharma Challenges:

the team gained a deeper understanding of the broader biopharmaceutical industry and the specific challenges posed by CGT. This will improve the team's ability to provide effective and meaningful solutions to clients.

Enhanced Collaboration:

through collaborative learning in both training programmes, team members not only improved their individual skills but also strengthened their ability to work cohesively as a group, ensuring they can collectively apply their knowledge and expertise.



Paul Stevens, Head of Global Training at Watson-Marlow, commented:

NIBRT's world-class facilities and custom training programmes provide our teams with invaluable opportunities to deepen their product application knowledge in the bioprocessing and CGT fields. Feedback from colleagues has been excellent, and we look forward to honing our expertise with further NIBRT custom courses that help us excel when finding solutions for our customers' fluid path challenges."

Trainee Feedback:



"My perspective is from someone new to the industry. Excellent in terms of the way it was lightly introduced and then expanded upon. Very knowledgeable trainers."



"This was so much fun, and I feel much more prepared to talk to my customers from both a supplier and process perspective."



"Excellent. The hands-on practicals are far superior to any prior training I've had which are mostly bogged down with classroom time."

Results



100%
satisfaction rating with overall course



9.8/10
average score for would you recommend course to a friend



9.5/10
average score for satisfaction with trainers



Case Study

Wayne Hogan

A Journey From Working in Construction to a New Career in Biopharma.



Wayne's journey began last year when he started the L6 Certificate in Biopharma course with NIBRT in partnership with ATU Sligo. The opportunity was made possible through the Springboard+ initiative, which provides accessible and subsidised education in essential skills areas.

Wayne's Motivation for Choosing the Course

"I had been working in construction for a number of years and wanted to try a different type of career. Biopharma was an area that always appealed to me, but it was difficult to find the time to study when I first got married and had young kids. When the kids got older, I decided to take the leap and get the qualification to start the career that I wanted."

Balancing Study and Personal Commitments

"This course is part time and mix of online learning with ATU Sligo, and practical modules at NIBRT in Dublin. I found the course easy to keep up with throughout the year especially because most of the content was taught online. It was great that the course was funded so I had hardly any course costs to pay."

Entering the Biopharma Workforce

"Since completing the course I have started working as an operator in Eli Lilly in Kinsale. My participation in the course definitely helped me secure this job and give me an advantage over other applicants as I had gathered some decent knowledge of the pharma industry. I had been working construction previous to doing the course so I'm gone in a completely different direction since completing. I would definitely think my career prospects have gone up significantly as there is great chance to grow within the company."

Recommendation for Career Changers

"Without a doubt, I would recommend this course to anyone thinking about a career change. Since completing the programme, I've already referred two friends who are now actively enrolled in this semester's course."

About the Course

The Certificate in Science Biopharmaceutical Processing (Special Purpose Award – Level 6) has been developed in consultation with the Biopharmaceutical industry in Ireland to ensure The modules offered in this programme include Upstream Processing, Downstream Processing, Sterile Fill Finish and Bioanalytics. The course is designed to introduce current manufacturing processes, good manufacturing practices and current industry trends to the participants. The course is aimed at process operators, technicians, technologists, and production team leaders, primarily seeking employment or wishing to upskill in the bioprocessing and cleanroom areas.



Contact Us

Training Team

Book a course directly via
www.nibrt.ie/training-and-education
Email training team at training@nibrt.ie
Call training team at **+353 (0) 1 215 8100**

NIBRT Online Academy (NOA)

Enrol on a NOA course directly at
noa.nibrt.ie
Email NOA team at support.noa@nibrt.ie

Further Information

For more information, please visit our website at:
www.nibrt.ie

Here you will find up-to-date information about course schedules, descriptions, registration, location and contact information.

Please sign up to our NIBRT newsletter to receive updates throughout 2024

www.nibrt.ie/contact

Visit NIBRT

Clients are very welcome to arrange a visit at:

National Institute for Bioprocessing Research and Training (NIBRT), Foster Avenue, Mount Merrion, Blackrock, Co. Dublin, Ireland, A94 X099.

Web: www.nibrt.ie
Phone: **+353 (0) 1 215 8100**
Email: training@nibrt.ie





Alfa Laval CultureOne System at NIBRT



Maryland Governor Wes Moore at NIBRT Global Partner BioHub Maryland Launch Event



Minister Simon Coveney visiting K-NIBRT in Incheon, South Korea



Students from Purdue University, USA at NIBRT



Carl Bermingham, NIBRT Training Lead, speaking at NIBRT Careers in Biopharma 2023



Huai Jinpeng, Minister of Education and Secretary of the Leading Group of the Communist Party of China, visits NIBRT

Appendix

Appendix 1 NIBRT Training Equipment List

Equipment	Manufacturer	Name	Equipment Description	Total	Location
Air Sampler	Millipore	Millipore Active Air Sampler	Air Monitoring for manufacturing facilities	1	Fill Finish
ATF System	Repligen	Repligen Cell ATF	Disposable ATF system used for perfusion processes	1	Upstream
Autoclave	Getinge	Getinge Autoclave Assembly	Machine that provides a physical method of sterilization	1	Equipment Preparation
Bioanalyser	Biomerieux	Viteck 2C	Instrument for DNA, RNA, or protein analysis.	1	Micro Lab.
Bioreactor	Pierre Guerin	150 L Stainless Steel Bioreactor	Stainless steel bioreactor used for cell culture applications	2	Upstream
Bioreactor	Pierre Guerin	30 L Stainless Steel Bioreactor	Stainless steel bioreactor used for cell culture applications	1	Upstream
Bioreactor	Applikon	Bio Console ADI 1025	Small scale 7L glass bioreactor for benchtop cultures	4	Media Preparation
Bioreactor	Sartorius	BIOSTAT CultiBag STR plus 200L	Single use wave bioreactor used for cell culture and scale up	1	Upstream
Bioreactor	Applikon	Gas Supply Unit ADI 1026	Small scale 7L glass bioreactor for benchtop cultures	2	Media Preparation
Bioreactor	Univercells	Scale - X	Fixed Bed Bioreactor and In-Line TFF Concentration	1	CGT Training Lab B
Bioreactor	Univercells	Scale-X Carbo System	Fixed Bed Bioreactor and In-Line TFF Concentration	1	CGT Training Lab B
Block Heater	Thermo Fisher	Digital Dry Bath	Designed to achieve precise temperature stability and uniformity	2	Micro Lab.
Block Heater	Eppendorf	Thermomixer Comfort	Heat/mix samples	1	QC Analytics
BSC	Euro Clone	Aura Vertic SD4	Biosafety cabinet class II	3	Cell Culture Lab
BSC	AZBIL Telstar Technologies	Bio II Advance Plus 4	Biosafety cabinet class II	11	CGT Training Lab A
BSC	Biosciences	SAFEMATE 1.2	Biosafety cabinet class II	1	Inoculum
BSC	Telstar	Bio II Advance Plus	Biosafety cabinet class II	3	Cell Culture Lab
BSC	Euro Clone	SAFEMATE 1.2	Biosafety cabinet class II	4	Cell Culture Lab
Capillary Electrophoresis	Beckman Coulter	PA 800plus	Sample separation and analysis	1	QC Analytics
Cell Counter	Roche	Cedex HiRes	Automated cell counter for cell viability	1	Cell Culture Lab
Cell Counter	ChemoMetec	NucleoCounter NC-202	Automated cell counter for cell viability	1	Cell Culture Lab
Cell Counter	Beckmann Coulter	Vicell	Count living cells quickly and autonomously	1	Inoculum
Cell Counter	Beckmann Coulter	ViCell Blu	Automated cell counter for cell viability	1	Cell Culture Lab

Equipment	Manufacturer	Name	Equipment Description	Total	Location
Cell Counter	Beckman Coulter	Vi-Cell XR	Automated cell counter for cell viability	1	Cell Culture Lab
Cell Culture System	Viva Bio Cell	NANT XL Bioreactor	Fully automated cell culture system	1	CGT Training Lab B
Cell Processing Instrument	Cytiva	Sefia S-2000	Cell therapy upstream and/or downstream	1	CGT Training Lab B
BSC	Telstar	Bio II Advance Plus 4	Biosafety cabinet class II	1	CGT Training Lab B
Cell Processing Instrument	Cytiva	Sepax C-Pro	Automated cell processing system	1	CGT Training Lab B
Centrifuge	Orto Alresa	Bioprocen 22 R	Bench top centrifuge	1	QC Analytics
Centrifuge	Eppendorf AG	Centrifuge 5424	Bench top centrifuge	1	QC Analytics
Centrifuge	Orto Alresa	Consul 22	Bench top centrifuge	2	CGT Training Lab B
Centrifuge	Gibco by ThermoFisher Scientific	CTS Rotea	Counterflow centrifuge for cell processing	1	CGT Training Lab B
Centrifuge	Alfa Laval	CultureOne Primo	Centrifuge for single-use cell harvesting	1	CGT Training Lab B
Centrifuge	Hettich	Hettich Zentrifugen	Bench top centrifuge	1	Cell Culture Lab
Centrifuge	GEA Westfalia Separator Group GmbH	Pilot Plant Centrifuge	Industrial scale stainless steel centrifuge used for cell harvest	1	Upstream
Centrifuge	ThermoScientific	SPD121P Speed Vac Concentrator	Remove solvents from a sample - works with the vapour trap	1	QC Analytics
Centrifuge	GEA Westfalia Separator Group GmbH	Whisperfuge	Benchtop scale centrifuge used for cell harvest	1	Upstream
Chromatography	Cytiva	Axichrom	Chromatography process	1	Downstream
Chromatography	Cytiva	BPG 100/500 Column	Pilot scale column used for product purification	2	Downstream
Chromatography	PALL	Chromatography System Skid	Industrial scale chromatography skid used for running purification processes	2	Downstream
Chromatography	Millipore	ISOPAK Column	Pilot scale column used for product purification	1	Downstream
Chromatography	Millipore	ISOPAK Slurry Transfer Skid	Pilot scale column used for product purification	1	Downstream
Chromatography	Kronlab	Kronlab Column	Pilot scale column used for product purification	4	Downstream
Clean out of place	BCD	Clean out of place	Cleaning vessels out of place	1	COP/SOP
Cleaning Systems	Ecolab	3 Bucket Systems	Cleaning systems for plant contamination control	5	Downstream
Depth Filtration	Millipore	Millistak Pilot Scale Pod Holder	Depth filtration system for harvest	1	Upstream
Depth Filtration	Pall	Stainless steel skid	Depth filtration system for harvest	1	Upstream
Depth Filtration	Pall	STAX Process Scale Chassis 5	Depth filtration system for harvest	1	Upstream
Depth Filtration	3M	Zeta Plus Encapsulated System Holder	Depth filtration system for harvest	1	Upstream

Equipment	Manufacturer	Name	Equipment Description	Total	Location
Digital PCR	Thermo Fisher	Quant Studio Absolute Q	Plate-Based digital PCR (dPCR) platform	1	CGT Training Lab B
Dilution Skid	Avantor	Inline Dilution Skid	Mixing of buffers at point of use from concentrates	1	Downstream
Downflow Booth	Bio Air	Blue Air	Containment device for operator protection	1	Media Preparation
Endotoxin Tester	Charles River	Enosafe nexgen-PTS	An in vitro assay used to detect bacterial endotoxins	1	Micro Lab.
Filling Line	Watson-Marlow	Flexicon	Aseptic liquid filling for GMP regulated facilities	1	Fill Finish
Filtration	Millipore	Milliflex Oasis filtration pump	Filtration	1	Micro Lab.
Filtration	Millipore	Milliflex PLUS	Filtration	1	Micro Lab.
FIT	PALL	AquaTest	FIT system with built in WIT system	1	Downstream
FIT	PALL	Flowstar	FIT system	2	Downstream
FIT	Millipore	Integritest 4 with Exact Air II	FIT system with built in WIT system	2	Downstream
FIT	Sartorius	Sartocheck 5	FIT system	1	Downstream
Flow Cytometer	Miltenyi	MACSQuant Analyser 10 Flow Cytometer	Cell analysis	1	CGT Training Lab B
Freezer	Gram	BIOBASIC RF210	-20 Degree Biostorage Freezer	1	CGT Training Lab B
Freezer	Cytiva	Via Freeze	Controlled rate freezer	1	CGT Training Lab B
Gas Analyser	Servomex	5200 Multi Purpose	Analyser used to measure levels of O2, CO and CO2	3	Media Preparation
Heating and Cooling Shaker	Benchmark Scientific	Multi-Therm	Temperature controlled vortexer	2	CGT Training Lab B
Homogeniser	GEA	Homogeniser	Homogeniser	1	Upstream
Incubator	Thermo Fisher Scientific	CO2 Incubator	Incubating cells	2	Cell Culture Lab
Incubator	New Brunswick Scientific	Excella E24	Incubating cells	1	Cell Culture Lab
Incubator	Thermoscientific	Heracell 240i	To grow and maintain microbiological cultures or cell cultures.	2	Micro Lab.
Incubator	ThermoScientific	Incubator	To grow and maintain microbiological cultures or cell cultures	1	Inoculum
Incubator	Eppendorf SE	New Brunswick S41i	CO2 Incubator Shaker	2	CGT Training Lab B
Isolator	Bioquell	QUBE Extension Module	Aseptic configurable isolator	3	Media Preparation
Light Box	Bosch	Bosch Light Box	LED light box for visual inspection of samples	1	Fill Finish
Light Box	Shield Medicare	KlerReveal UV 52W Cabinet	Viewing area illuminated by UV	2	Micro Lab.
Lyophiliser	Telstar	LYOBETA 3P8	Freeze-Dryer with graphic HMI	1	Fill Finish
Microbial Detection System	Biomerieux	Bact Alert 3D	Accurate organism identification	1	Micro Lab.
Microplate Reader	Bio-Tek Instruments	Synergy HTX	Single-channel absorbance, fluorescence, and luminescence microplate reader	1	Micro Lab.

Equipment	Manufacturer	Name	Equipment Description	Total	Location
Microscope	Various	Microscope	An instrument that is used to magnify small objects	22	Various
Osmometer	Gonotec	Osmomat 030	Measure osmolality	2	QC Analytics
Oven	Memmert	Memmert UNE 400	Heating ovens used for heating, drying, tempering, testing, ageing, sterilisation	1	Micro Lab.
Particle Counter	TSI	AeroTrak APC	Particle copunter	1	Micro Lab.
Particle Counter	Astech (Ireland) Ltd	Lighthouse Solair 3100+	Particle counter	1	Fill Finish
Particle Counter	Beckman Coulter	MET ONE 3400+	Particle counter	1	Micro Lab.
Partswasher	Suncombe	Parts Washer Pilot Plant	Piece of equipment used to remove contaminants	1	Equipment Preparation
PCR	BioFire Diagnostics LLC	FilmArray 2.0 Industry	System panels test for viruses, bacteria, parasites, yeast, and antimicrobial resistance genes	1	Micro Lab.
PCR	Applied Biosystems	QuantStudio 5 Real-Time PCR	Quantify nucleic acid in samples	1	QC Analytics
Perfusion	PALL	Perfusion Skid	Stainless steel perfusion skid for perfusion processes	1	Upstream
Plate Reader	Bio Tek Synergy	H1 Plate Reader	Measure chemical events/responses in a well of a microplate	1	QC Analytics
Pump	Telstar	2F-3 Vacuum Pump	Lyophilizer vacuum pump	1	Fill Finish
Refrigerated Heating Circulator	Huber	Refrigerated Heating Circulator	Refrigerating machine	1	CGT Training Lab B
Rocker	Bibby Sterilin LTD	Stuart See-saw Rocker	Mixing of liquids in vessels	1	QC Analytics
Scales	Sartorius	Sartorius Floor Scales	Floor scales	1	Buffer Preparation
Scales	Sartorius	Sartorius Floor Scales	Floor scales	1	Media Preparation
Sealer	Sartorius	Biosealer	Aseptic tube sealing device	1	Buffer Preparation
Sealer	Sartorius	BioSealer	Device for disconnecting thermoplastic tubing in a sterile sealing operation	3	Equipment Preparation
Seperator	Gibco by ThermoFisher	CTS DynaMag	Magnetic seperation system	1	CGT Training Lab B
Single Use Bioreactor	Cytiva	XDR-50	50 Litre Single use bioreactor	1	Single Use Suite
Single Use Chromatography	Cytiva	AKTaready Gradient	Single use chromatography system	3	Single Use Suite
Single Use Bioreactor	Cytiva	XDR-200	200 litre single use bioreactor	2	Single Use Suite
Single Use UDFD	Cytiva	AKTareadyflux	Single use ultrafiltration & diafiltration system	1	Single Use Suite
Small Scale UDFD	Pall/Masterflex	Minimate TFF system	Bench top ultrafiltration & diafiltration system	6	Flexible
Smoke Machine	Astech (Ireland) Ltd	AFM 35 Cleanroom Fogger	Cleanroom smoke machine	1	Fill Finish
Smoke Machine	CAT Clean Air Technology	Volvano VP 12	Air flow demonstrations	1	Cell Culture Lab
Sonicator	Elma	Elmasonic S 30 H	Device that uses ultrasonic energy to agitate particles in liquids.	1	Equipment Preparation

Equipment	Manufacturer	Name	Equipment Description	Total	Location
Spectrophotometer	Agilent Technologies	Cary 60	Measure how much light a substance absorbs	1	QC Analytics
Spectrophotometer	Jenway	Jenway 6305	Measure how much light a substance absorbs	1	QC Analytics
Spectrophotometer	C-Technologies	SoloVPE	Calculate protein concentration.extinction coefficient	1	QC Analytics
Spectrophotometer	Hitachi	U-2900	Measure how much light a substance absorbs	1	QC Analytics
Steam out of place	BCD	Steam out of place	Steam sterilise vessels	1	COP/SOP
Thawer	Cytiva	Via Thaw	Dry automated thawer	1	CGT Training Lab B
Thermal Validator	Amphenol Themometrics Inc.	Kaye Validator X2015E	Thermal mapping system for validation of thermal processes	1	Upstream
Titrator	Mettler Toledo	Karl-Fisher Compact Titrator	Moisture analysis	1	QC Analytics
Transfection System	Invitrogen (Thermo Fisher)	NeonTransfection System	Benchtop electroporation device	1	CGT Training Lab B
Tube Sealer	Sartorius	Biosealer	Sealing tubing	2	Single Use Suite
Tube Sealer	Cytiva	Hot Lips Tube Sealer	Sealing tubing	1	Equipment Preparation
Tube Welder	Sartorius	Biowelder TC	Welding tubing together	2	Single Use Suite
Tube Welder	Cytiva	Sterile Tube Fuser - Dry	Welding tubing together	1	Equipment Preparation
Ultrafiltration / Diafiltration	PALL	Ultrafiltration System Skid	UF/DF skid for concentration and diafiltration	2	Downstream
UV Lamp	Magnaflux LTD	Magnaflux ZB-100F	Portable, hand-held UV lamp for fluorescent non-destructive testing applications	1	COP/SOP
Vapor Trap	ThermoScientific	Savant RVT400 Refridgerated Vapor Trap	Remove solvents from a sample - works with the speed vac concentrator	1	QC Analytics
Vessel	Kells Stainless Ltd.	50 L Buffer Vessel	50 L Vessel for buffer preparation	2	Buffer Preparation
Vessel	Kells Stainless Ltd.	Capture Pooling	Vessel for viral clearance/ filtration	1	Downstream
Vessel	Kells Stainless Ltd.	Harvest Vessel	Vessel for collection of cell process outputs	1	Upstream
Vessel	Kells Stainless Ltd.	Viral pH	Vessel for viral clearance/ filtration	1	Downstream
Viral Filters	Asahi Kasei	Viral Filter	Viral filtration and gold particle testing	2	Downstream
Water Bath	Medical Supply LTD	Water Bath	Lab equipment used to incubate or thaw samples	1	Inoculum
Waters	Acquity	UPLC System	Sample seperation and analysis	2	QC Analytics
Wave Bioreactor	Cytiva	ReadyToProcess Wave 25	Single use wave bioreactor	2	Single Use Suite
Welder	Sartorius	BioWelder	Automated device for connecting thermoplastic tubing in a sterile welding operation	3	Equipment Preparation
Welder	Terumo	Terumo Sterile Tubing Welder	Sterile tubing welder	1	CGT Training Lab B



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