

RAIL ENGINEER



Signalling
Your **Future**
Through **LAAT**



LONDON ACADEMY OF
APPLIED TECHNOLOGY

SEEK EXCELLENCE. INSPIRE FUTURE.

LONDON ACADEMY OF APPLIED TECHNOLOGY
NBSH New Broad Street House, 35 new broad Street
Office No. 224, Liver Pool Street, Post Code EC2M 1NH
City of London - UK email: info@laatech.co.uk

Join the **WORLD CLASS**

Due to the huge national growth and investment in the rail market, the industry is predicting a significant skills shortage over the next 10 years. In order to meet this challenge and offer young people an exciting career pathway, Newcastle College Rail Academy trains and delivers the rail engineers of the future.

The Academy is the first of its kind in the North East and was developed in conjunction with the National Skills Academy for Railway Engineering (NSARE) and key rail employers such as Network Rail. The purpose-built facility consists of a number of real working environments to train technicians and engineers in a variety of realistic operational scenarios.

The facility is based in Gateshead, and benefits from easy access via the Heworth and Felling Metro stations, Heworth Bus Interchange and is approximately 15 minutes away from major motorway road links.



Newcastle College is one of the largest Further and Higher Education Colleges in the UK with over 20,000 students. Our Education Colleges in the UK with over 20,000 students. Our international student population comprises of students from more than 60 different countries. We have been awarded more than 60 different countries. We have been awarded Beacon status in recognition of our excellent teaching and learning experience as well as holding a Matrix award. Our first-class facilities replicate real working environments and offer an exceptional learning experience.

The Rail Training Programme covers a range of technical, professional and practical aspects of the rail industry which will be taught at Newcastle College's dedicated Rail Academy. The core programme is delivered over an 8-week period but can be extended to 10 weeks to include 2 weeks of English Language preparation if required.



Facilities Provided By **NEWCASTLE COLLEGE UK**

- Full indoor and outdoor ohle
- Fully operatings S&C and S&T Equipment
- Multiple way setups
- Latest electronic and plc testing & monitoring equipment
- Signalling workshop
- Mechanical workshop



Course CONTENT

- Railway safety
- Hand tools and equipment
- Railway maintenance
- Track geometry
- Track inspections
- Track and line protection
- Track safety, theory and principles
- Emergency procedures
- Accident analysis
- Main signalling designs
- Electrical and mechanical signals
- Track circuits
- Signal boxes, designs and processes

8-week RAIL PROGRAMME

Location:

Newcastle College, Rail Academy

Social activities:

Weekend excursions to include day trips to Edinburgh, York, Durham,

Meals:

Lunch provided on campus for every weekday student in attendance.

Included services:

Airport pick/drop off, welcome meal, graduation ceremony/meal.

www.laatech.co.uk

SCHEME OF WORK TEMPLATE

Programme Title:

Railway System Appreciation

	Module	Delivery method	Assessment	Objectives	Notes
Day 1	Employment rights and responsibilities Track construction / Layout	PPP- ERR PPP- track layout Questions Discussions of the above	Diagrams Statements Practical Under pinning knowledge	Have a clear understanding of employment rights and responsibilities. Have a clear understanding of the foundations of the railway infrastructure.	Recap of the days . Under pinning knowledge questions
Day 2	Railway safety Job roles and responsibilities	PPP- Railway safety PPP- Job roles/responsibilities Track walk	Diagrams Statements Practical Under pinning knowledge	Be able to follow the safe working practices within the railway environment. Understand the roles and responsibilities of staff associated with railway Have a clear understanding of where you are within the railway infrastructure at all times.	Recap of the days . Under pinning knowledge questions
Day 3	Re cap of last session Hand tools and equipment Components Manual and mechanised plant	Quick fire questions to Recap previous session PPP- Hand tools Practical- hand tools PPP- components Practical- components PPP- Core plant	Questioning Diagrams Statements Practical Under pinning knowledge	Have the knowledge of the different hand tools associated with the railway infrastructure and their uses. Be able to use railway hand tools safely. Have a understanding of the different components used within the railway and their uses. Have initial knowledge of the different plant used on the railway and the reasons why.	Recap session Under pinning knowledge questions
Day 4	Railway maintenance activities: : Re railing : Changing sleepers : Tamping mech/manual : Track geometry : Ballast profiling : Fishplate maintenance Planning maintenance activities.	PPP- maintenance activities Practical sessions Diagrams Track compliant forms	Questioning Diagrams Statements Under pinning knowledge	Understand what type of work activities take place and the need for these. Understand what is required to undertake different installations and their processes.	Recap session Under pinning knowledge questions

Day 5	Visit to bowes heritage site	Mini bus Practical – visit Discussion	Discussion Observation	To have knowledge and capabilities of working to a safe system of work while on a operational site. To gather some history of how railways operated on the main line and in the mining industry.	Recap session
Day 6	Undertake work activity: Change a rail : Change a sleeper :	Practical Observation	Obsevation Statement Under pinning knowledge	Create a plan of actual work to be undertaken. Create a timeline to run along side your installation process Identify where re evaluating the installation process or possible other methods could be used to simplify the task	Re cap session Discussion Under pinning knowledge
Day 7	Undertake a work activity: Track geometry : Tamping :	Practical Observation	Obsevation Statement Under pinning knowledge	Create a plan of actual work to be undertaken. Create a timeline to run along side your installation process Identify where re evaluating the installation process or possible other methods could be used to simplify the task	Re cap session Discussion Under pinning knowledge
Day 8	Undertake a work activity: : Ballast profiling : Fishplate maintenance	Practical Observation	Obsevation Statement Under pinning knowledge	Create a plan of actual work to be undertaken. Create a timeline to run along side your installation process Identify where re evaluating the installation process or possible other methods could be used to simplify the task	Re cap session Discussion Under pinning knowledge
Day 9	Track differentials: CWR : Jointed Track Routine track maintenance: : Stressing : Welding	PPP- Track PPP- stressing PPP- welding Diagrams Discussion	Statements Diagrams Under pinning knowledge	To have a full understanding of the different track types and the pros and cons for each. To understand the principles for routine maintenance by Stressing and welding of track.	Recap session Under pinning knowledge
Day 10	Track inspections: : Plain line : Track catagories : Inspection forms	PPP- track inspection Practical	Form filling Statements Under pinning knowledge	Undertand what different track inspections take place. Know what needs to be identified within track inspections Understand the reporting procedures. Correctly fill in the track inspection form.	Recap session Discussion Under pinning knowledge

Day 11	Track visit to lamesley park sidings	Track visitor permit practical	practical	To visit a live track, to walk round and familerise themselves with the hazrads and dangers of real live track. To acknowledge trains as they pass following network rail rules through out.	Questioning
Day 12	Track safety theory and priciples Track safety basics Principles of protecting the line. Ensuring traffic runs safely	PPP- PTS Diagrams Practical	Diagrams Questioning Statements Under pinning knowledge	Have a clear understanding of the rules and requirments with regards to the staying safe on the infrastructure. Protecting the line. Inspections	Recap session Under pinning knowledge
Day 13	Hierarchy of safety Job roles Escalation Safe working practices	PPP- Diagrams Practical	Diagrams Questioning Statements Under pinning knowledge	Have a clear understanding of the hierarchy of safety of the line Understand how to eascalate issues Lead resposability	Recap session Under pinning knowledge
Day 14	Possession management Proocedures	PPP- Practical – walk through	Diagrams Questioning Statements Under pinning knowledge	Understand how traffic is protected when running Understand how traffic is protected when maitainance work has taken places	Recap session Under pinning knowledge
DAY 15	Protecting the line Methods of safety Evaluating traffic safety	PPP- Diagram	Diagrams Statements Questioning Practical Under pinning knowledge	Understand the key roles of staff associated with protecting the line Different methods of protecting the line Setting up protecting the line	Recap sessions Under pinning knowledge

Day 16	Track safety theory and principles Atws Tows Lows ERTMS	PPP Observation Practical walk out	Observation Track visitor permit	Traffic management Automatic track warning system Train operated warning system Lookout operated warning system ERTMS	Questioning
DAY 17	Traffic safety skills Emergency procedures	Diagrams Questioning PPP- Practical –OLE supports	Questioning Statements Diagrams Under pinning knowledge	Have a understanding of tall the different ways of setting up the emergency procedures People associated with the emergency procedures	Recap session Under pinning knowledge
DAY 18	Traffic safety legislation and frameworks RIO TOLO SIO RIC RIAAB	Diagrams Questioning PPP-	Questioning Statements Diagrams Under pinning knowledge	Have a understanding of the frame work regarding traffic safety Have an understanding of the persons involved with traffic safety legislation	Recap session Under pinning knowledge
DAY 19	Traffic safety and accident analysis	Diagrams Questioning PPP-	Diagrams Discussion Under pinning knowledge	Have a understanding of the safety and accident analysis procedures and timescales Have an understanding of the timescales each part of an accident takes	Recap session Under pinning knowledge
DAY 20	Traffic safety analysis and evaluation	Diagrams Questioning PPP	Diagrams Discussion Under pinning knowledge	Have a understanding of the traffic safety analysis Have an understanding of the evaluation of traffic safety	Recap session Under pinning knowledge
Day 21	Record of work completed Complete UPK	Statement paperwork UPK questions	Written statement Under pinning knowledge	To clearly show understanding and knowledge retention has taken place. To be able to follow the correct process for each activity.	Under pinning knowledge

DAY 22	Main signalling designs Key roles and responsibilities	PPP- duties, roles and responsibilities Diagrams PPP- Railway signalling	Statement Questioning Diagrams Under pinning knowledge	Have a clear understanding of how signals work within the railway. Have a understanding of how signals are designed in the way they are. Understand peoples job roles their responsibilities and limits within their authority	Recap session Under pinning knowledge
Day 23	Electrical signals Mechanical signals Hazards associated with signalling equipment	PPP- signalling equipment Diagrams Practical walk out	Observation Discussion Statement Under pinning knowledge	To have a good understanding of the different types of signalling equipment both electrical and mechanical. To be able to recognise the different types of signalling equipment. To understand the hazards and dangers when working around signalling equipment	Recap session Under pinning knowledge
Day 24	Track circuits Axle counters Points	PPP- track circuits Diagrams PPP- switches and crossings Practical walk out	Observation Discussion Statement Under pinning knowledge	To understand how track circuits work and the possible problems associated with track circuits. Understand and recognise axle counters there functions and the possible problems associated with them. Have a clear understanding of how switches and crossing affect track circuits.	Recap session Under pinning knowledge
Day 25	Signal boxes TPWS	PPP- signal boxes PPP- safety nets	Statement Under pinning knowledge	To establish the role of signal boxes with regards to track circuits / signalling. Understand the role of the signaller. Have knowledge of the safety procedures with TPWS.	Recap session Under pinning knowledge
Day 26	Troughing Location boxes	PPP- signalling cables Diagrams Practical walk out	Statement Observation Under pinning knowledge	Have a good understanding of track side troughing / what is located within and hazards associated with troughing. Have a good understand of track side location boxes there uses / necessity and hazards associated with them.	Recap session Under pinning knowledge

Day 27	Visit to York railway museum	Practical day out	Observation Discussion	Visit to the York railway museum to gather knowledge of track signalling new and historical. Visit the live signalling boards and match train arrivals/ departures with the live signalling boards. have acquired acceptable knowledge and capabilities when visually using electronic signal boards/screens.	Questioning discussions
Day 28	The plan of maintenance procedures The test log system Associated paperwork for any signalling installation/maintenance work	PPP- maintenance of signalling equipment. Discussions Diagrams	Statement Diagrams Under pinning knowledge. Form filling.	To have knowledge of the types of maintenance activities that take place with signalling equipment. To understand the importance of the test log systems and their relevance. Be able to fill in required forms and ensure compliance with them.	Recap session Under pinning knowledge.
Day 29	New signal designs and processes ERMS New warning systems Requirements for new installations	PPP- signalling the future PPP- ERMS Diagrams	Statement Underpinning knowledge questions	To have sufficient knowledge of the upcoming new signalling designs and processes and the benefits from these. To be prepared for the ERMS system when it is implemented. Understand the requirements for installing new signalling equipment following network rail rules and guidelines.	Recap session Under pinning knowledge
Day 30	Practical session- signalling maintenance(day 1)	PPP- maintenance of signals Safe system of work Practical	Observation	To be able to undertake routine maintenance of electric signals. To follow a safe system of work while undertaking maintenance of signals.	Questioning
Day 31	Practical session- signalling maintenance(day 2)	PPP- signalling repair Practical	Observation	To be able to fault find and repair a signalling problem. To work safely at all times. To fill in the relevant forms.	Observation
Day 32	Record of work completed signalling Completion of UPK	Statement paperwork UPK questions	Written statement Under pinning knowledge	To clearly show understanding and knowledge retention has taken place. To be able to follow the correct process for each activity. To have followed all safe working practices and understand the importance of following procedures.	Under pinning knowledge

BENEFITS OF PROGRAM

Benefits to Students

- An opportunity to get hired by the Industry/ organization.
- Practical experience in an organizational setting.
- Excellent opportunity to see how the theoretical aspects learned in classes are integrated into the practical world. On-floor experience provides much more professional experience which is often worth more than classroom teaching.
- Helps them decide if the industry and the profession is the best career option to pursue.
- Opportunity to learn new skills and supplement knowledge.
- Opportunity to practice communication and teamwork skills.
- Opportunity to learn strategies like time management, multi-tasking etc in an industrial setup.
- Opportunity to meet new people and learn networking skills.
- Makes a valuable addition to their resume.
- Enhances their candidacy for higher education.
- Creating network and social circle and developing relationships with industry people.
- Provides opportunity to evaluate the organization before committing to a full time position.

BENEFITS OF PROGRAM

Benefits to the Industry

- Availability of ready to contribute candidates for employment.
- Year round source of highly motivated pre-professionals.
- Students bring new perspectives to problem solving.
- Visibility of the organization is increased on campus.
- Quality candidates availability for temporary or seasonal positions and projects.
- Freedom for industrial staff to pursue more creative projects.
- Availability of flexible, cost-effective work force not requiring a long-term employer commitment.
- Proven, cost-effective way to recruit and evaluate potential employees.
- Enhancement of employers image in the community by contributing to the educational enterprise.

RAIL ACADEMY POLICY

Guidelines & Procedures

- Learn to apply the Technical knowledge in real industrial situations.
- Gain experience in writing Technical reports/projects.
- Expose students to the engineers responsibilities and ethics.
- Familiarize with various materials, processes, products and their applications along with relevant aspects of quality control.
- Promote academic, professional and/or personal development.
- Expose the students to future employers.
- Understand the social, economic and administrative considerations that influence the working environment of industrial organizations
- Understand the psychology of the workers and their habits, attitudes and approach to problem solving.

CODE OF CONDUCT

Behaviour Policy

While abroad, you are representing your home country. For this reason, we expect all students to behave in a legal manner that is respectful of other people, customs, and property.

As a student, you are responsible for researching and understanding issues that relate to your respective host country's laws, as well as the safety, health, political, and cultural conditions of the host country.

While enrolled in Rail Academy Program, UK it is expected that participants will abide by the following code of conduct. Violation of this code will be met with appropriate disciplinary action, up to and including dismissal from the program.

While in a foreign country, a student is subject to that country's laws and regulations. That country may not afford the protections available under home country.

Any student convicted of a crime abroad can expect incarceration and/or fines. LAAT will not assist in legal matters caused by a participant's use of alcohol or drugs.

DISCIPLINARY ACTION

Violation of any of the following may result in disciplinary action from LAAT

LAAT staff will have an investigation and/or review before taking disciplinary action. Please note that if a student engages in violent behaviour towards any member of LAAT staff, host family, university faculty/staff or LAAT participants they will be immediately removed from the program.

Termination of participation does not diminish or otherwise affect the students obligation to make any and all payments to LAAT. The dismissed student will not receive any certificate.

- Usage of Alcohol and Drug
- Criminal behaviour or violation of local laws, including theft or vandalism
- Violation of rules in effect in the student s residence
- Violation of rules in effect at the host university
- Repeated intoxication
- Abusive language or behaviour toward LAAT staff, university faculty/staff, host family, or other LAAT program participants
- Sexual harassment
- Disorderly, indecent, or obscene conduct
- Violent behaviour
- Damage to any facilities, housing, university, hotels, or transportation vehicles
- Plagiarism and cheating
- Falsification of documents or personal records submitted to LAAT as part of the application or acceptance process.
- Any inappropriate conduct including but not limited to violation of any LAAT policies.
- Misplacing passport, visa or any other important document required as per UK laws.
- Overstaying in the country after completion of course and expiry of visa.

FEES REFUND POLICY

Tuition fees paid to LAAT may be refunded in the following cases

The following rules have been decided by LAAT and apply for refunding of tuition fees. All decisions regarding refunds are made by the Admissions Board.

- If the student does not receive a United Kingdom (UK) visit visa. The admissions procedure is cancelled and the student has the right to receive a full refund of the amount paid, excluding bank/ card charges.
- If LAAT retracts its offer of a study place or is unable to offer the programme concerned, the student has the right to a full refund.
- If an admitted student is granted permission by Admission Board to defer the start of his or her studies, he or she has the right to a full refund of the amount paid, excluding bank/card charges

Reimbursement of Fees

- If the reimbursement application reaches LAAT before 45 days of the start date of the course, the full tuition fee, excluding bank and card charges, will be reimbursed.
- If the reimbursement application reaches LAAT before 30 days of the start date of the course, 75 per cent of the tuition fee will be reimbursed after deducting visa charges (if already incurred).
- If the reimbursement application reaches LAAT before 15 days of the start date of the course, 75 per cent of the tuition fee will be reimbursed, 50 per cent of the tuition fee will be reimbursed after deducting visa charges.
- If the reimbursement application reaches LAAT before 8-10 days of the start date of the course, the tuition fee will not be reimbursed.
- A request for a refund shall be made in writing to the Admissions Board and sent via the Division of Finances at LAAT. Decisions on refunds are made by the
- Admissions Board. Please note that approved refunds are made to the same person (or organisation) that paid the invoice.



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