

Aligning education with the forest industry

The Forestry Skills Study for England and Wales shows that getting hold of suitable staff to fill job vacancies is a challenge for employers in the tree work industry. **DC Vickers** points at secondary school curriculums as part of the solution.



Reasons for skills shortage

The exact reasons for this human resource challenge are not entirely clear but, according to the Forestry Skills Study, most employers still consider that there is a shortage of new entrants coming into the sector due to incorrect perceptions of the industry. The study also states that “[senior managers] are concerned over the general aptitude of people entering the sector, with an absence of potential ‘leaders of the future’ and a lack of innovative and ambitious thinking”.

It would seem, therefore, that there does exist a problem not just in the quality of candidates coming into the industry, but also with those pupils even knowing about the forestry sector: none of the forestry professionals interviewed for the study had come across it as a result of careers advice at school. The report considered the links between FE / HE provision as well as the apprenticeship options but is the real issue to do with the lack of links between the industry and secondary schools?

A disconnect between two struggling opposites: employers and graduates

The industry view would appear to suggest that those coming into the industry also soon tire of the physical hard work required, as the Forestry

Skills Study puts it “with manual operations where perceptions of forestry as being hard physical and potentially dangerous work remain to the greatest degree and impact on the sector’s ability to recruit young staff”.

At the same time, there is a large pool of school and university leavers keen to enter the job market:

“Young people, collectively, have never left education more highly qualified, with more years of schooling behind them and yet they are facing unprecedented struggles to succeed in the early labour market.”¹

Is there a disconnect between those leaving the education system and the industry, whereby the industry sees school- and college-leavers as not ready for work, and young people attempting to get into the industry are struggling to compete with older workers for economic opportunities?

With the prospect of many traditional manual jobs declining and the trend towards more skill-intensive jobs at all levels, the need for improving student skills and knowledge through greater contact with business during their studies becomes ever more important. Careful curriculum design then offers a better alignment with the needs of the labour market and enriches student learning².

Integrating real-world forestry into high-school mathematics

This article looks at how forestry skills could be incorporated into mainstream education at secondary schools, providing both an awareness of the sector and real-life problem-solving which is important “as students aspire to achieve better grades when they know requirements of employers”³. Whilst there are several areas where this could be integrated, we will focus on mathematics here: “everyone uses maths in their daily life... we need to do a better job of introducing concepts and skills that create the connec-



Forestry mensuration could be used as real-life examples for high school mathematics. (Credit: Forestry Commission)

FORESTRY AND THE NATIONAL CURRICULUM

According to the Department of Education (2013) pupils should be taught to:

“Use Pythagoras’ Theorem and trigonometric ratios in similar triangles to solve problems involving right-angled triangles”

This basic example could be met by calculating the height of a tree using a stick, which fundamentally uses Pythagoras’ Theorem to achieve. Another key benefit is that integrating common forestry tasks within the maths agenda would present a wide range of possible scenarios utilising both classroom- and practical-based activities, bringing experiential learning to maths

“Derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids (including cubes) and other prisms (including cylinders)”





tion between the real world and the math classroom more often”⁴.

The National Curriculum is a set of subjects and standards used by primary and secondary schools. At Key Stage 3, maths provides a number of options to integrate real-world forestry management examples into teaching and perhaps the industry needs to work much closer with teachers to highlight this particular sector. “Despite [numerical skills, literacy and use of information and communication technologies] being the sorts of skills that should be developed at an early age, there are repeated calls from employers for their development to be improved and concomitant complaints that today’s students have insufficient grasp of such skills”⁵.

Curriculum design with industry relevance Curriculum design must be relevant to today’s industry and that relevance is important; it should be “designed to develop declarative (knowing about), procedural (knowing how) and conditional knowledge (knowing why and when) in the learner... these distinctions are important because to design a curriculum that captures the full range of learning, all three types of knowledge must be part of the process”⁶.

There is another issue that is not directly related

to school – according to the Forestry Skills Study, most employers “have little understanding of the current system of educational awards and qualifications. Indeed this lack of understanding is a significant issue for the sector as it leads them to disengage from the formal educational system”. Yet this link between the industry and education is exactly what is required, providing the ability to highlight the practical application of the skills and knowledge learnt in the classroom and the work-place. The sooner we can bring the forestry industry and education together at all levels – not just FE and HE – the quicker we can expect a workforce that is more able to react to the demands of an industry that is rapidly changing.

REFERENCES

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- 3 Kashhepakdel et al (2017). *Making the Grade: Does Involvement In Activities With Employers Impact The Academic Achievement Of Young People*. Education and Employers.
- 4 Hanlon, William. *Teaching Struggling Students in Maths: Too Many Grades of D or F?* R&L Education, 2012. EBSCOhost
- 5 Miller, Linda et al. *Basic and Employability Skills*. International Journal of Training & Development, vol. 17, no. 3, Sept. 2013, pp. 173-175. EBSCOhost, doi:10.1111/ijt.12007.
- 6 Allen, S.J et al (2014) *Know, See, Plan, Do: A Model for Curriculum Design in Leadership Development*. SAM Advanced Management Journal (Spring 2014) pp. 26-38.

FTN WEB RESOURCES



Read and download the Forestry Skills Study
List of bibliographic references for this article
www.confor.org.uk

Course selector

Higher education courses in forestry, arboriculture and urban forestry in the UK, commencing academic session 2018-2019.

Compiled by
Adam Todd

INSTITUTION	COURSE	FT	PT	DL	ICF pts
UNDERGRADUATE					
UNIVERSITY OF ABERDEEN School of Biological Sciences	BSc (Hons) Environmental and Forest Management	•			NA
ASKHAM BRYAN COLLEGE Professional Tree Surgery and Management	FdSc Arboriculture and Urban Forestry	•	•		NA
BANGOR UNIVERSITY School of Environment, Natural Resources and Geography (SENRGY)	MFor (4-year Master of Forestry degree)	•			8
	BSc (Hons) Forestry	•			8
	BSc (Hons) Conservation with Forestry	•			6
	BSc (Hons) Geography with Environmental Forestry	•			NA
UNIVERSITY OF CUMBRIA National School of Forestry	BSc (Hons) Forest Management	•	•		8
	BSc (Hons) Woodland Ecology and Conservation	•	•		6
	BSc (Hons) Forestry (Top-Up)	•	•		*
	FdSc Forestry	•	•		5
HARPER ADAMS UNIVERSITY Department of Crop and Environment Sciences	BSc (Hons) Countryside Management	•			5
	BSc (Hons) Countryside and Environment Management	•			5
INVERNESS COLLEGE UHI Scottish School of Forestry	BSc (Hons) Forest Management	•	•		TBC
	HND Forestry	•	•		5
	HND Arboriculture and Urban Forestry	•	•		5
	HNC Forestry	•	•		NA
	HNC Arboriculture and Urban Forestry	•	•		NA
MYERSCOUGH COLLEGE University of Central Lancashire	BSc (Hons) Arboriculture and Urban Forestry	•		•	8
	FdSc Arboriculture & Tree Management	•		•	5
NORTHUMBERLAND COLLEGE Kirkley Hall Campus	FdSc Arboriculture and Bsc Arboriculture	•			TBC
	FdSc Environmental Conservation and BSc Top-Up	•			
PERSHORE COLLEGE University of Worcester	BSc (Hons) Arboriculture and Tree Management (Top-Up)	•			8
	FdSc Arboriculture	•			5
PLUMPTON COLLEGE University of Brighton	FdSc Arboriculture	•	•		5
	FdSc Forestry and Woodland Management	•	•		5
TAUGHT POSTGRADUATE					
UNIVERSITY OF ABERDEEN School of Biological Sciences	MSc Environmental and Forest Management	•			NA
BANGOR UNIVERSITY School of Environment, Natural Resources and Geography (SENRGY)	MSc Environmental Forestry	•			6
	MSc Agroforestry)	•			5
	MSc Forestry			•	5/6
	MSc Tropical Forestry			•	6
HARPER ADAMS UNIVERSITY Department of Crop and Environment Sciences	MSc Forestry Management	•	•		6
	MSc Conservation and Forest Protection	•	•		6
MYERSCOUGH COLLEGE University of Central Lancashire	MSc Arboriculture and Urban Forestry	•	•	•	6
	PGDip Arboriculture and Urban Forestry	•	•	•	NA

Course accreditation (ICF Points)

Many Forestry and Arboriculture courses are accredited by the Institute of Chartered Foresters (ICF). Points are awarded based on course content: a minimum of 4 and a maximum of 8 points can be awarded to individual courses. Points are credited as partial fulfilment of the requirements for Professional Membership Entry (PME) to the Institute. New or re-validated courses require assessment from ICF and point scores are to be confirmed (TBC), while points awarded for others are dependent on prior qualifications and learning (*). Several courses are not accredited (NA) at the present time. Further information about course accreditation and the PME process is available from ICF: www.charteredforesters.org/join-us.

Course delivery modes

Professional Forestry and Arboriculture courses are offered in three delivery modes: full-time (FT), part-time (PT) and distance learning (DL). For many of the full-time courses there is an additional option to complete an industry/work-based placement (sandwich-year). It is important to check with each institution for information about course content, options and delivery, all of which can change at relatively short notice.

Information sources

Information contained in this note is based on an email consultation conducted by RFS, and the review of college and university websites with courses commencing in Academic Session 2018-2019. The UCAS website (www.ucas.com) was also consulted. Last updated: 04 March 2018.



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Transatlantic taskforce finds design solutions

Students from Edinburgh Napier teamed up with colleagues from America's elite Harvard University to explore the challenge of creating the sustainable communities of the future.

The two groups joined forces for a learning week which focused on the use of pre-manufactured timber construction systems.

The event saw them travel to forests, factories and construction sites across Scotland to get an insight into the work of architects, engineers, manufacturers and developers. They enjoyed a guided tour of the CCG off-site facility in Glasgow.

Edinburgh Napier's Dr Robert Hairstans hosted the week after an earlier conference meeting with Harvard's George L Legendre underlined their shared belief in the importance of off-site manufacturing, where the pre-assembly work is done in a controlled factory setting, enabling homes to be built faster and to higher sustainability standards.

It is seen as a potential solution to the UK's housing crisis and a way of tackling existing challenges which include an ageing construction workforce, skills shortages and planning constraints.

They also heard from experts at the 1735ha Falkland Estate in Fife about the rich conifer and broad-



The students during a visit to the CCG factory.

leaves forestry there, and future development plans.

Other highlights included a master planning seminar, a look at the New Waverley regeneration scheme in Edinburgh city centre, visits to Carbon Dynamic in the Highlands and a cross-laminated timber project in Bath Street, Portobello, and a guide to the architecture of the capital's Royal Mile.

Guy Watt, of John Clegg Consulting, added: "The speed with which they picked up Falkland Estates' social and cultural philosophies and values and included it in their individual group presentations at the end of their workshop session was very impressive. It would be good to make this an annual event and develop stronger links with Harvard GSD and Edinburgh Napier BeX as we benefitted from the visit as well."

Pioneering operator course a success

The latest Forest Machine Operator Skills Development course delivered by the established partnership of UKFPA, the Barony campus at Scotland's Rural College (SRUC), John Deere Forestry and Forestry Commission Scotland is nearing completion.

This intensive and practical course offers four training places and addresses all aspects of mechanised harvesting and forwarding operations. Candidates are selected from people working in the forestry sector who demonstrate promise as forest machine operators.

Jake Richardson, Matthew Ralph, Aidan Fitzpatrick and Robert Cowie started on the latest eight-week course in January. Having completed two weeks' intensive instruction at Barony, which included the use of machine simulators, the trainees moved to a large harvesting site at Knockespan Forest for the remaining six weeks of the course.

The training on-site included hands-on working on both harvesters and forwarders as well as maintenance under supervision and instruction.

Jake works for Kingdom Farming in Fife and had previously done some work with chainsaws and forwarders. He said: "I have enjoyed the hands-on training. We have covered a lot of machine maintenance,



which has been very useful, and I have learned quite a few tips for the forwarder. The course has been a great experience for me."

Matthew Ralph from Aberdeenshire grew up in a rural community and developed a strong interest in land-based industries, particularly farming and forestry. He said: "I have been involved with practical farm work over many years and gained most of my work experience on farms. My father works in forestry so I have been to many forestry sites and have had experience of felling and processing trees but I wanted to gain more knowledge and get some certification. Working on the steep slopes has been challenging but it has been great learning more techniques that I can make use of going forward."

The trainees will be assessed this week under the Forest Machine Operator Certification scheme.

FTN WEB RESOURCES



FTN visited Barony College in April 2017 – read the article

www.confor.org.uk

Systems thinking in forestry certification training



Clive Thomas
on certification training with the Soil Association

Twenty-five years on from FSC's foundation, forest certification is now an integral part of our industry and an intrinsic component of career development. In 2018, the critical issue is to ensure that we have the correct knowledge to handle forest certification effectively. While the key architecture of forest certification is necessary – the standard setters that make up the framework (FSC and PEFC), the certificate holders (organisations responsible for meeting standard requirements) and the certification bodies (those that audit organisations against the standards) – its complexity can hinder more integrated understanding of the ultimate goals of certification.

Might a better understanding by certificate holders of the audit process and its benefits as a continuous improvement tool, help forest managers meet certification requirements? Similarly, if auditors had a better understanding of the forest industry and why organisations want certification, could this support both the professional development of auditors and the certification body they work for? Using an integrated, systems approach to answer questions like these and implementing that methodology where forest certification is taught and delivered is precisely how Soil Association Certification, a leading FSC and PEFC certification body worldwide, has developed its training services.

With over 20 years' experience delivering certification services and with former certificate holders on the team, we are well placed to lead the way on

Main training programmes currently on offer

Excellence for Forest Certification Training

Our innovative course on Responsible Forest Management and Sustainable Forest Product Supply Chains is available to participants across the globe. Each two-week course is offered as a fully residential package. Participants depart knowledgeable on the latest developments in responsible forest management and sustainable forest product supply chains, and with a full understanding of the FSC and PEFC schemes.

FSC and PEFC Training

We are one of a small number of training providers able to provide these courses worldwide. Those who successfully complete the full FSC Forest Management, Chain of Custody and Auditing to ISO 19011 course receive a valid certificate as part of a crucial step towards becoming a qualified FSC auditor. These courses are of special interest to certificate holders and other providers of certification services.

Our PEFC Chain of Custody training programme is recognised by PEFC International and offered as an integrated option with the FSC Chain of Custody Course.

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innovative approaches. We actively encourage trainee auditors, current and potential certificate holders to attend the same Chain of Custody or Forest Management courses together, to bring a range of perspectives together. We also make our training 'audit real' by instructing in the field, for trainees to experience how real forest management challenges are addressed on the ground.

Frequent changes to certification standards means it makes little business sense for employers and academic training providers to independently keep up to date with new forest management standards, chain of custody requirements, and the interface between certification and timber legality legislation. These are gaps we aim to close.

Clive Thomas is the Course Director for all Soil Association Certification (FSC®A000525) training courses.

RFS launches new one-day courses

Five new topics – Woodland Archaeology, Tree Health, Tree ID, Forest Soils and GIS management planning – have been added to the Royal Forestry Society's popular one-day courses for 2018.

Back by popular demand are courses on Grading and Measuring your Timber, a Guide for Caring for your Wood and Essentials for Measuring Woods and Trees.

The first of the courses, Woodland Archaeology and Tree Health are being held in April. All course are open to members and non members.

Upcoming courses

Tree Health - pests and diseases

6 April 2018, led by Adam Sharman (right)

Woodland Archaeology

16 April 2018, led by John Morris

Tree ID

29 June 2018, led by John Morris

More information and booking:
www.rfs.org.uk/events/training-courses



CAN YOU HELP?

BSW and Inverness team up to train saw doctors

Inverness College UHI has developed the first bespoke saw doctor qualification in Scotland in partnership with the BSW Timber Group.

Until now this highly specialised traditional skill-set has lacked any formal training structure and Inverness College UHI has worked with some of the most experienced saw doctors in the country to develop the new qualification, which responds to industry needs.

Saw doctors are vital to the running of a modern sawmill, with the role combining traditional hand finishing skills with the use of modern computer numerical control (CNC) processing technology.

The university currently works with BSW to deliver modern apprenticeships in a range of disciplines, including engineering maintenance, which allows its employees to combine work-based learning with study over four years.

Latterly, BSW has provided its own in-house saw doctor training, complemented by external supplier courses, to its saw doctor trainees on modern apprenticeship pathways.

Development of the new qualification means all BSW saw doctor training will now be delivered through Inverness College UHI, with assessments taking place in the workplace.

Kate Ellistone, Inverness College UHI business solutions co-ordinator, said: "The course has been developed in partnership with experienced BSW saw doctors to create a structured, fit for purpose qualification which can be studied in tandem with the existing engineering maintenance modern apprenticeship or in its own right over 18 months. On completion of the course, students will receive a joint Inverness College UHI/BSW certificate."

Inverness College UHI now plans to seek Scottish Qualification Authority accreditation for the qualification, which will be delivered at SVQ Level 3. The university is also working closely with other employers to roll-out the qualification to the wider industry in Scotland.

For more information, please contact Helen Aird
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Saw doctors play a vital role in a modern sawmill.

How student placements help the forestry sector grow

We encourage Confor member companies to get in touch with education providers to discuss any placements you could offer to current students and graduates. Two universities give you an idea of what students are looking for and whom to get in touch with:



National School of Forestry (NSF)

The NSF at the University of Cumbria runs two BSc and one FdSc programme. The BSc Forestry Management and BSc Woodland Ecology and Conservation students have the option to take a work placement year and as part of the FdSc Forestry programme the work placement is a mandatory element. Our students are looking for work experience in all aspects of forest and woodland management including supervisory roles for up to 1 year across the UK. Please contact Mark to learn more about the range of subjects studied in years 1 and 2, or to arrange a meeting.

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Scottish School of Forestry

A one-year industry placement is mandatory between the first (HNC) and second (HND) year of our BSc (Hons) Forest Management programme. Students can apply for and undertake a wide range of placements, both nationally and internationally, and with a wide range of organisations including: Scottish Woodlands, FC Scotland, Mark Seed Forestry, BSW, Maelor, James Jones and Sons, GM Forestry, Forest Facts, Reay Forestry, Roxburgh Estate, Amber Trees, Treewise and Scotwood. However, we are always looking for more partner employers. If you are interested in finding out more, or and to get involved with the Scottish School of Forestry, please contact Neil.

Neil Cleland, Forestry lecturer

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Bangor

A one-year placement is optional for our BSc Forestry and BSc Conservation with Forestry degree programmes. Host organisations can advertise their placements with us and then interview students, with no obligation to host.

Students apply for and undertake a wide range of placements both within the UK and abroad. Recent / current host organisations include: Scottish Woodlands, FC Scotland, Maelor Forest Nurseries, Crown Estates, Pryor and Rickett Silviculture, Hayden Associates, National Trust, Northern Ireland Forest Service, Furlong Forest Surveys.

We are always looking for more partner employers. If you are interested in finding out more about what is involved with offering a placement to a Bangor University forestry student, please contact Sopan.

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