

A Business Case for Structured In-Service-Training and Professional Articles Training

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Abstract

Effective In-Service-Training and Professional Articles training is essential for the future of the geomatics profession. This paper presents a workable, practical and highly effective model for providing training to diploma students and Bsc graduates. The model has been developed and refined over a period of 13 years by the directors, staff and students of NPM Geomatics. The model makes no apology for high standards and expectations from participants, and has proven to be of benefit and value to the students, institutions of higher learning, other employers and NPM Geomatics in particular.

The paper covers the imperatives for effective training; the assumptions which underpin the program; the expectations of the employer; the selection of the students; the structure, methodology and administration of the training program; and the results achieved over the 13 years of running this program.

The conclusion sets out the 6 key components of a successful formalised training programme.

Keywords

articles, training model, excellence, effective, productive, return on investment

Introduction

This paper is an overview of the In-Service-Training (IST) and Article training program developed, and used, by NPM Geomatics for training young survey technicians and professional land surveyors. The program has been developed over the past 13 years, and provides a rigorous approach to training within a strategic and financially viable business model.

The program model is designed to select top students, provide them with broad and relevant training, and close out the training period once they have completed their in-service-training or articles. Apart from providing students with practical survey training, the programme also encourages and promotes independence, resourcefulness, resilience and responsibility through ongoing mentorship through the year.

Whilst it would be naïve to assume that every training experience will be a positive or profitable one, if the program is structured and managed properly, the benefits far outweigh the potential problems.

The paper covers the following key headings: Imperatives for Training, Assumptions and Expectations, Student Selection, Program Structure, Results Achieved, and Conclusion.

Imperatives for Training

Numerous imperatives exist for every survey / geomatics business to adopt a rigorous training programme for young graduates.

Close the circle

Every person who is PLATO registered, has been trained by someone else. At the end of our training, these people have signed to confirm that we are capable and competent to carry out the survey tasks and responsibilities associated with our registration category. In the same way, we should be willing to do the same for others.

To do is to know - To teach is to understand. The best way to self-improvement and mastery is to take the time to mentor and train another person. During this process you pass on knowledge and skill, and gain a deeper understanding about yourself, your business and your field of expertise.

Pay it Forward

Anyone who has spent any time talking to a group of surveyors over a beer or two, will have heard about the poor quality of entry level surveyors is today. It was never like this “*in our day*”, they say. However, it is very often these same seasoned surveyors who refuse to train youngsters, or who use students for routine and menial tasks during their training days.

A fundamental key to a good training program is to offer high value training which enables the student to become capable and competent in all aspects of survey work. A student should be competent in field measurement, data processing and communication, commensurate with their level of academic qualification, once they complete their training.

The NPM philosophy is to provide students with a comprehensive scope of training that has value to both the student and the business.

Strategy and Smart Business

The NPM training model ensures that students are capable and competent in the fundamentals of field measurements and data processing within 3 months of joining the company. The following 9 or 18 months (depending on diploma or BSc) are then highly productive and valuable to both the student and business. Students gain “real” experience as they are able to take on more complex surveys and data processing tasks. The business benefits through increased production, without an associated increase in staff costs.

Use Government Incentives

The skills development levy is a tax which all businesses pay. With a small amount of effort, these funds can be accessed and valuable tax rebates can be obtained for providing training for students. In particular, the S12H allowance provides for a deduction during the year of assessment for any student who is registered within a learnership with the company.

Currently the Department of Rural Development and Land Reform have a multitude of students studying towards a diploma or BSc in geomatics. The salaries of these students is paid by the Department whilst doing their training, which eases the burden on the company salary bill. The S12H allowance is also applicable to these students, which provides a double benefit and incentive to offer training.

Staff Continuity & Loyalty

An ancient proverb says, “*train a child in the way they should walk, and they will never depart from it*”. In the same way, NPM Geomatics uses our training program to teach and coach young surveyors within our corporate culture. This approach builds solid relationships which last forever. Students who have been integrated into the company during their training are preferred candidates for internal employment after graduation. Many students remain connected to the NPM “family” long after their departure and employment with other companies, and keep in touch through email, personal visits and social media.

Internal Improvement

Maybe one of the most important imperatives for maintaining a training program is the value of continuous internal improvement. Since students are integrated into the company from the start of their training, everyone is engaged and involved, which keeps positive energy levels within the company at a high level.

Although students are required to comply with company policy and procedure, and complete certain tasks, they also provide valuable feedback as “new comers” to the business. Young people, by nature, are expanding and pushing their boundaries as they take their place in the world. So anything that does not make sense to them is challenged. By adopting an open approach to the questions and challenges of our students the directors ensure that the company remains flexible and relevant.

Assumptions and Expectations

The NPM training programme is built on a number of fundamental assumptions and expectations, which set the tone and standard for participation in the programme.

Assumptions

1. Students are students until they graduate. Many students believe that once they have completed their theoretical training, they are eligible to be paid at the same level as qualified staff. NPM pays a basic stipend to enable students to survive for the year of their training. The stipend covers accommodation, food, cell phone and basic transport requirements.

2. Students will be treated as full staff, regardless of who pays their salary. Students are contracted in terms of a limited period training contract which sets out all responsibilities, benefits and obligations of being part of the training programme, in a clear and concise manner. Students are required to sign the contract prior to commencing with their training, and by so doing agree to adopt and adhere to the discipline and work ethic of NPM Geomatics.
3. Students know nothing when they arrive for their training. This assumption is important and essential for keeping blood pressure, and the risk of heart-attack, low. The training program is designed to teach new students everything they need to know in order to measure in the field and process the same measurements, in accordance with NPM procedures.
4. Students want the best foundation for their careers, and are keen to learn and achieve. Another ancient proverb says, "*when the student is ready, the teacher will appear*". There is no value to anyone in attempting to train a person who is not interested in learning. NPM Geomatics carefully selects our students based on their readiness to learn and develop into the best they can be.
5. We assume that the training / student relationship will be a win-win partnership for the student and the business. In this type of relationship, each party gives and each party receives to the satisfaction of everyone.
6. Finally, we assume that students will be capable, competent and employable after completing 12 months of IST, and further, that BSc graduates will be adequately prepared to register at a professional level after completing their articles with NPM.

Expectations

1. Students will put in high levels of effort and will perform with a high level of energy and interest in the projects that they are assigned to. Our culture is to work hard, and to help each other do what it takes to get the task done correctly, on time and within budget. We expect students to become part of "us" while at NPM.
2. Students will spend at least 12 months with NPM. We take on students from 1 January to 31 December, and ensure that they are able to sign off all their training days in this time. NPM does not subscribe to the common practice of students "ticking off days" and then refusing to do work which has been "covered" in the logbook.
3. Students will be productive within 2-3 months. The training contract and programme is structured to ensure that students who will not or do not perform at the required level of competence within 3 months are released from the programme. Students who pass the 3 month probation are given increasing levels of responsibility for executing and processing surveys.
4. Students are resourceful enough to sort out their own accommodation and transport arrangements. NPM does not assist with accommodation, and students are expected to have the ability to take responsibility for themselves.
5. Students are expected to be competent and confident drivers, and must be able to demonstrate confidence in driving a single cab LDV (bakkie) to the satisfaction of an NPM appointed assessor.

Student Selection

Given that the programme is built on some stringent assumptions and expectations, it follows that our student selection is equally stringent and rigorous. Some people may protest that, if all training providers adopted a similar approach, many students would not be able to obtain in-service-training. However, if this was so, it would not take long for students to lift themselves to the level that the industry demands.

Application Process

All applications are received via email, and so the email inbox is the first point of elimination. Only emails which have an appropriate subject line and show a valid attempt at communication on a business / formal level are processed. All emails which either have no subject line, no content (i.e. only an attachment), or which are shotgun emails sent to a global list, are ignored and deleted. In certain cases, where it is clear that a person is trying, but has not met the standard

we expect of an email, we will respond and make suggestions for a second attempt. For example, writing in SMS text is not considered business writing, and will be referred back to the writer providing that all other criteria above have been met.

Emails that are processed are responded to with a standard email, acknowledging their email and setting out our requirements for a formal application. The email refers them to our website where an application form is available for download and which must be completed in their own handwriting. The application form sets out what is required, and is very specific in what supporting documents must be submitted and the format of the submission. Candidates who cannot follow these simple instructions are not considered further.

Short-Listing Criteria

Full applications which are correctly submitted and fully meet the criteria are then further processed. Students are selected for short-listing based on the following mandatory criteria:

1. Full completion of an application form.
2. Supply of all supporting documentation in the correct digital formats.
3. A letter of motivation stating why he or she wants to be part of the NPM training programme. Students who are able to articulate themselves in a way that demonstrates independent thinking are selected, and applications which have been simply copied from a colleague or a template are rejected.
4. Academic record which demonstrates the student's satisfactory grasp of the theoretical content of their course.
5. Valid driver's licence.

After short-listing, 4-6 students are invited to an interview in East London which is held after the completion of their exams in October. Students are expected to pay their own way to the interview.

Selection Criteria

The selection interview is structured in 4 phases.

The first phase involves a plenary briefing with all short-listed students. The session is interactive, and students are encouraged to ask questions. In this briefing, we first discuss our company and its reason for existing, our corporate culture and values. We then outline the training programme and how it is structured. In this section we introduce the concept of what we call the "Survey Tasks", which are a set of basic survey modules which has to be completed within the first 3 months of their training. Finally, we discuss critical company procedures, non-negotiable policies and the stipend that is paid to students.

The second phase involves a simple driving assessment which assesses their competence and confidence behind the wheel of a single cab bakkie. The driving assessment is usually done by a different person to the person running the briefing session.

The third phase involves a one-on-one interview with each student. The interview is conducted jointly by a director and a senior surveyor. In this interview we are looking for a mix of inner confidence and strength to cope with our working environment, balanced with humility and respect which is essential for learning and continuous improvement.

The final phase of the interview is the submission of a single page, preferably typed, report on the student's interview experience. The report is required to be submitted by email, in pdf format, within 96 hours of the interview.

Once all reports have been received, the interview panel makes a final selection of between 3-4 students, and all applicants are advised accordingly. Students who are selected are sent a formal training contract which they are required to accept by signing and sending back to the office within 72 hours of receipt.

The training contract covers the following key issues:

1. Working conditions.

2. Limited period contract for training purposes only.
3. Stipend / Allowance paid, subject to statutory deductions, and the date of payment.
4. Leave – how many days, and when it may be taken.
5. Probation period linked to the satisfactory completion of their survey tasks.
6. Confidentiality clause.
7. Notice period applicable to both parties.
8. NPM Non-Negotiable Policies

Program Structure and Methodology

The initial focus and intention of the NPM training programme is firstly to ensure that students are capable, competent and productive within 3 months of starting their training. Once the students have achieved their task submission, the training focus shifts to developing our students through exposure to more complex surveys, higher levels of data processing and ongoing mentorship. Mentorship is provided at 2 levels. The first level of mentorship is provided by a senior surveyor assigned as a mentor to each student. The second level of mentorship is regular engagement with, and feedback from, the professional surveyors and directors in the office.

During the first week of the year, each student is assigned a senior surveyor as a mentor, receives a copy of the NPM manual of procedures, and a copy of the “Survey Tasks” workbook. The survey tasks are treated as any other NPM project, and are expected to be done in accordance with company procedure. A time limit of 3 months is given to complete their tasks, failing which their training contract is terminated.

Survey Tasks

The survey tasks are designed to expose students to basic surveying and processing using NPM equipment, software and protocols. The programme requires the survey tasks to be done twice – once with help and assistance by their mentor, and secondly without assistance. Students are expected to do their tasks on Saturdays, and are also expected to assist each other with holding staves and prism poles during the levelling and strip surveys.

Each task includes both field work and office processing which includes presentation of the final data and a signed report. The tasks include:

1. Establishing control by GPS and theodolite observations;
2. Levelling the control;
3. Surveying a simple strip survey and intersection;
4. Building a benchmark to TMH11 standards; and
5. Reading and understanding a survey risk assessment and conducting daily toolbox talks.

Students are required to submit their first set of completed tasks within 2 months. The submission is assessed by a director and feedback and guidance provided on how to improve. The second, independent submission, is then due 4 weeks after the first submission.

Apart from the value of learning how to use the equipment and software, the tasks also provide a unique team-building experience for the students and permanent staff. The tasks are designed to create a “pressure cooker” effect, with the associated tears, despair and finally victory.

Monthly Reporting

A newly introduced, and high impact, aspect of the programme is a requirement for monthly reporting. The reporting covers both a report on projects worked on in the past month, plus the submission and signing off of their training logbook.

The monthly reporting is a valuable component of the professional mentorship which the student receives. Through this report, the professional staff stay abreast with the projects the students are working on and use the report as a discussion point during one-on-one discussions. Each student is required to submit a typed, monthly report in pdf format which must include the following information:

1. Surveyor Name and Month of report.
2. Projects, with job number, worked on during the past 30 day period.
3. Equipment / software used in each project.
4. Lessons learned in the past month, which must include both technical aspects of survey and data processing (hard skills), and personal development (soft skills).

Students are also required to keep their training logbook up to date, and submit their logbooks for signature at the end of each month. This practice ensures that the student takes responsibility for his or her training schedule and brings any shortfalls to the attention of the professional mentors in a timely manner.

Results Achieved

NPM started developing its own training programme in the early 2000s. Since then the company has trained over 50 diploma students and, more recently, 3 articulated graduates. The company currently has 4 diploma students and 1 articulated graduate in the training programme.

Although the programme was developed to benefit the company, the most rewarding results come from students who express their gratitude for their training once they have qualified. Happy staff are a vital indicator of corporate health!

Due to the modern trend of young people working for shorter periods with a company, NPM is often able to provide employment to students who perform well. This is a win-win for both student and company, as the student is promoted to a junior technician position without the need for basic training in company procedure or policy.

The NPM programme enjoys a high level of recognition and strong reputation amongst students and academics at the universities, making NPM a company of choice for students seeking training. A benefit of a strong reputation is that NPM is able to select from the top students each year due to the large volume of applications received.

From a corporate perspective, high value is created for the business through ongoing improvement to our survey procedures and the training programme itself. By continually adjusting and improving, the company continues to improve its performance, productivity and levels of staff engagement.

Conclusion

NPM Geomatics has been training students within a structured and formalised programme for the past 13 years. Based on the lessons learned during this time, the key components of a successful training programme are:

1. Know your Why! Understand the imperatives for implementing a training programme.
2. Clarify your assumptions and expectations.
3. Carefully design your selection, interview & appointment processes.
4. Design your training programme. Make sure that the instructions, specifications, deliverables and time-frames are clearly set out.
5. Track progress and hold the student accountable for quality and performance.
6. Give more value in training than you extract from fees.

In conclusion, creating a structured training programme within a survey company makes good business sense, and creates significant value. Value is firstly created for the student who receives a balanced exposure to field work and office processing, which ensures that they are both capable and competent when they graduate. Secondly, value is created for the company through good returns on investment of both time and money, plus an added value of ongoing stimulation of existing staff through the mentoring of students.

Contact details

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