



 **ANPOWER**
RESOURCES GUIDE
FOR BIOMEDICAL SCIENCE INDUSTRY

PREFACE

Labour market situation

The labour market performed well in 2010: Total employment grew by 3.9% (or 115,900) compared to 2009 and unemployment fell to 2.2%, lower than the 3% a year ago. For 2011, the Ministry of Trade and Industry expects Singapore's Gross Domestic Product to grow 5 to 6%. In the second quarter of 2011, overall employment increased by 24,800 and unemployment rate remain low at 2.1% With positive economic growth and a tight labour market, there is a need to moderate the demand for foreign workers while at the same time raise productivity. Foreign worker levies will be increased in six-monthly intervals up to July 2013 to reduce the reliance on foreign manpower and create the necessary impetus for employers to turn to productivity improvement instead.

Need to improve productivity

There are government initiatives such as the S\$2 billion National Productivity Fund (NPF) and the enhanced Productivity and Innovation Credit (PIC), which aim to assist companies to focus on raising productivity for sustainable growth. Productivity-driven growth is the main thrust to deliver sustainable and inclusive economic development. It is, therefore, important for companies to continue to invest in productivity initiatives, improve the skills of workers and optimize the allocation of foreign manpower.

What is the Manpower Resources Guide?

Manpower Resources Guide is a new initiative by the Ministry of Manpower, in collaboration with other agencies and education institutions, to highlight the sources of local manpower on which companies can tap to meet their immediate and near-term manpower needs. This first edition of Manpower Resources Guide covers the Infocomm, Food & Beverage and Biomedical Sciences industries.



How Manpower Resources Guide helps employers

Manpower Resources Guide provides information on the pipeline of manpower that will be available from tertiary education institutions (i.e. ITE, polytechnics, universities) over the period 2011–2015. The publication also outlines the specific skill sets in which this manpower supply will be trained, as well as the salary ranges of occupations. This will help employers to find and attract the right talent for their needs. Included in this publication is a special feature on other viable sources of manpower (i.e. older workers and back-to-work women) that employers could consider, especially in the tight labour market. The publication provides contact information for each manpower resource to help employers recruit directly from specific sources.

Feedback is welcomed

We hope that you will find this publication useful in helping you to meet your company's manpower needs. We welcome feedback on how Manpower Resources Guide has helped you, as well as suggestions for improvement, especially in terms of other industries you would like to see featured. We can be reached at MOM_MPP@mom.gov.sg.



CONCEPTS AND DEFINITIONS¹

Occupations in demand¹ are obtained from MOM's industry engagements. They are selected because they are key occupations in the **Biomedical Sciences** industry and have good career growth potential. These occupations in demand are indicative and may change according to economic and labour market conditions.

Relevant qualifications and skills are programmes/courses that train graduates to be ready for a particular occupation. They outline the skills that graduates are taught as part of the specific programme/course. The programmes/courses are obtained from MOM's industry engagements as well as from the respective tertiary education institutions. However, employers are not restricted to hiring workers from the stated courses. They may also hire workers who have acquired the relevant skills from other programmes/courses.

Wage range refers to the gross median monthly wages that workers of a particular occupation receive in the labour market. The wage range by age band gives an indication of the salary a worker can expect as he stays on in that occupation. A worker who has performed well in an occupation could be promoted to a higher position, and the wage level could be adjusted accordingly. The wage data is from MOM's Occupational Wage Survey 2010 as well as from respective agencies' inputs. Wages may have changed since MOM's survey was last conducted.

Supply numbers are the projected number of graduates for a particular programme/course. The numbers are obtained from the tertiary education institutions. The numbers are rounded off and are meant to be indicative. The actual numbers may differ due to factors such as change in intake numbers and attrition.

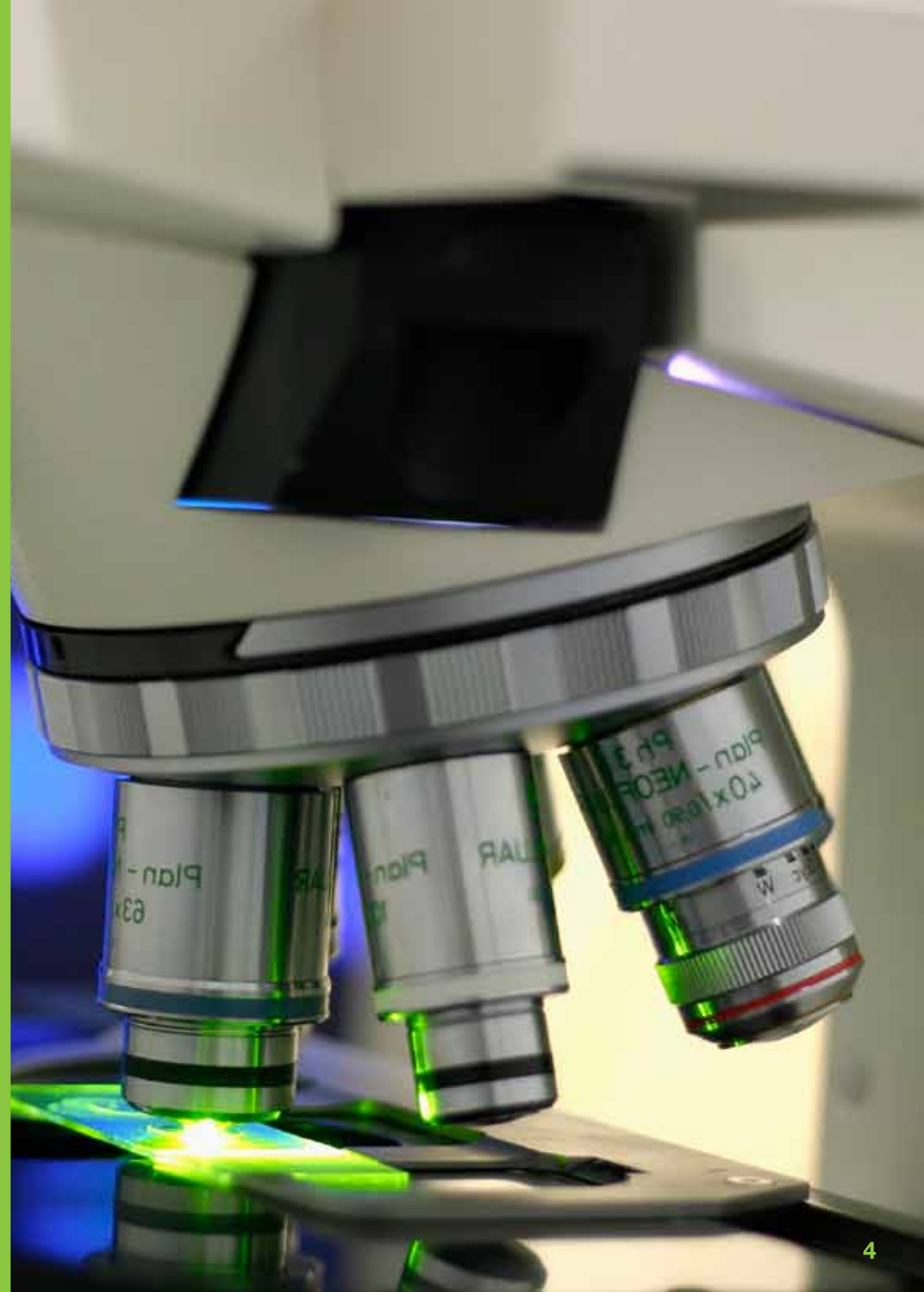
¹The content of this publication is provided on an "as is" basis without warranties of any kind. To the fullest extent permitted by law, MOM does not warrant and hereby disclaims any warranty as to the accuracy, correctness, completeness, reliability, timeliness, non-infringement, title, merchantability or fitness for any particular purpose of the contents of this publication.

Biomedical Science (BMS) is a key component of Singapore's manufacturing industry, comprising pharmaceutical, biotechnology, medical technology and health-care services. BMS output expanded threefold from S\$6.3 billion in 2000 to S\$20.7 billion in 2009, while value-add (VA) increased by more than twofold, from S\$3.8 billion to over S\$9 billion over the same period. BMS accounted for 10% of total manufacturing output in 2009 and currently employs 13,174 workers.

Today, leading pharmaceutical, biotechnology and medical technology companies have invested in 50 commercial-scale facilities and continue to partner Singapore in enhancing manufacturing excellence in areas such as sustainable manufacturing and process development. These companies include Abbott, Bayer, GlaxoSmithKline, Lonza, Merck Sharp & Dohme, Millipore, Novartis, Pfizer, Roche and Sanofi-Aventis.

In the medium term, the BMS industry is confronted with the need to improve R&D productivity and address unmet health-care needs brought upon by an ageing population in Singapore. Presently, companies are involved in partnerships with some 30 local public-sector academic and research institutes. This places them in a good position to tap the multidisciplinary capabilities offered by Singapore's integrated research network in basic and translational research. Also, Singapore has intentions to become a leading hub for clinical trials in Asia by increasing significantly the number of clinical trials it conducts, targeting specifically at phase I trials. Clinical Research Organisations (CROs) that have already set up bases in Singapore include PPD, Parexel, Quintiles and MDS Pharma Services.

BIOMEDICAL SCIENCE INDUSTRY



*Indicative Number of Graduates by Course and Year for
the Biomedical Science Industry*

CHEMICAL PROCESS ENGINEERS



Wage range

\$ 3,168
(25–29 years old)

\$4,053
(30–34 years old)

\$4,688
(35 years old and above)

NTU

Bachelor's Degree in Chemical and Biomolecular Engineering

SUPPLY				
2011	2012	2013	2014	2015
50	40	40	40	Not available

- Graduates have a strong grounding in the fundamentals of chemical and biomolecular engineering principles.
- Graduates are equipped with the principles of chemical engineering and life sciences (biology, biochemistry and genetics) to facilitate the development of safe, profitable and environment-friendly chemical/biological products.

For recruitment matters, please contact:

(I) NTU Career & Attachment Office

Tel: 6790 5242

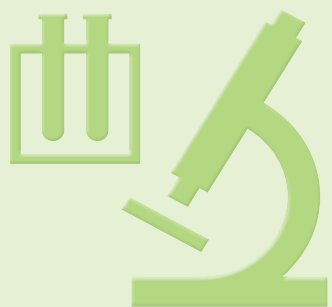
Email: cao@ntu.edu.sg

(II) Ms Lora Wong

Tel: 6790 4451

Email: mywong@ntu.edu.sg

CHEMICAL PROCESS ENGINEERS



Wage range

\$ 3,168
(25–29 years old)

\$4,053
(30–34 years old)

\$4,688
(35 years old and above)

NUS

Bachelor's Degree in Chemical and Biomolecular Engineering

SUPPLY				
2011	2012	2013	2014	2015
250	290	320	280	300

- Graduates have a strong foundation in chemical engineering fundamentals and are trained to solve challenging industrial and cutting-edge research problems.
- Graduates are equipped with skills to apply lab-scale research to the setting of a large-scale production plant, and have the knowledge to create new raw materials, devices and drugs.

For recruitment matters, please contact:

(I) NUS Career Centre

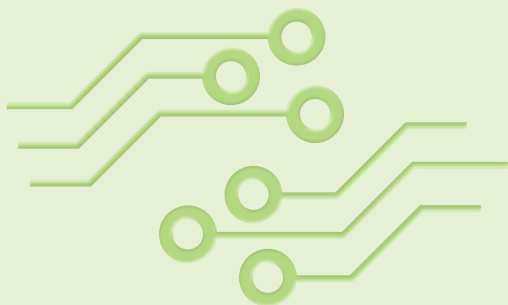
Tel: 6516 1385

Email: careers@nus.edu.sg

(II) Mr Allan Seow

Email: allanseow@nus.edu.sg

ELECTRICAL ENGINEER



Wage range

\$3,156
(25–29 years old)

\$3,700
(30–34 years old)

\$4,718
(35 years old and above)

NTU

Bachelor's Degree in Electrical and Electronics Engineering

SUPPLY				
2011	2012	2013	2014	2015
20	30	30	30	Not available

- Graduates are equipped with basic foundation in physics, mathematics, and electrical and electronic engineering, as well as biomedical information/image processing and instrumentation that are applicable to the biomedical engineering industry. They are able to design circuits and devices, and integrate and develop systems needed in the industry.

For recruitment matters, please contact:

(I) NTU Career & Attachment Office

Tel: 6790 5242

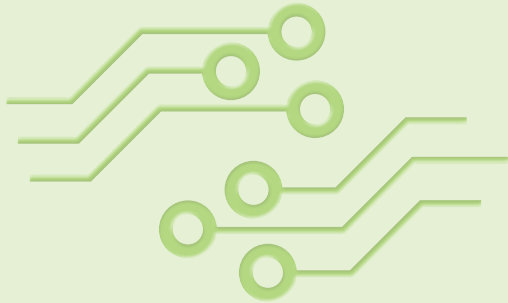
Email: cao@ntu.edu.sg

(II) Ms Lora Wong

Tel: 6790 4451

Email: mywong@ntu.edu.sg

ELECTRICAL ENGINEER



Wage range

\$3,156
(25–29 years old)

\$3,700
(30–34 years old)

\$4,718
(35 years old and above)

NUS

Bachelor's Degree in Electrical Engineering

SUPPLY				
2011	2012	2013	2014	2015
320	310	280	300	270

- Graduates have a strong foundation in scientific and engineering fundamentals, which provides them with a mix of education, business and research opportunities.

For recruitment matters, please contact:

(I) NUS Career Centre

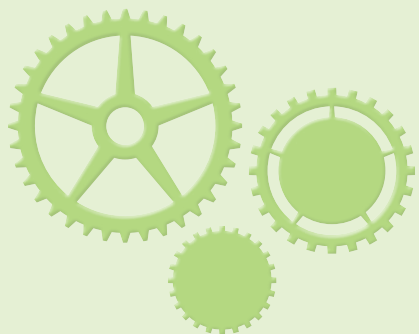
Tel: 6516 1385

Email: careers@nus.edu.sg

(II) Mr Allan Seow

Email: allanseow@nus.edu.sg

MECHANICAL ENGINEER



Wage range

\$3,113
(25–29 years old)

\$3,635
(30–34 years old)

\$4,306
(35 years old and above)

NTU

Bachelor's Degree in Mechanical Engineering

SUPPLY				
2011	2012	2013	2014	2015
580	590	620	600	Not available

- Graduates have a broad engineering foundation as well as bespoke knowledge and skills in some relevant leading-edge technologies.
- Graduates have a strong grounding in quantitative, problem-solving, design and communications skills.
- Graduates have the skills in reading and evaluating engineering blueprints and technical schematics. They are proficient in performing both quantitative and qualitative analysis/design of mechanical components, devices and systems.

For recruitment matters, please contact:

(I) NTU Career & Attachment Office

Tel: 6790 5242

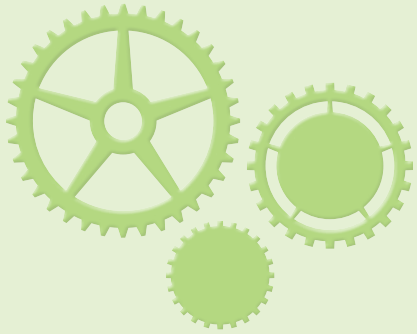
Email: cao@ntu.edu.sg

(II) Ms Lora Wong

Tel: 6790 4451

Email: mywong@ntu.edu.sg

MECHANICAL ENGINEER



Wage range

\$3,113
(25–29 years old)

\$3,635
(30–34 years old)

\$4,306
(35 years old and above)

NUS

Bachelor's Degree in Mechanical Engineering

SUPPLY				
2011	2012	2013	2014	2015
380	320	400	380	350

- Graduates have a strong foundation in principal areas of mechanical engineering sciences, namely Applied Mechanics, Control, Electrical Engineering, Fluids Engineering, Manufacturing, Materials and Thermodynamics and Heat Transfer to aid them in designing innovative products.

For recruitment matters, please contact:

(I) NUS Career Centre

Tel: 6516 1385

Email: careers@nus.edu.sg

(II) Mr Allan Seow

Email: allanseow@nus.edu.sg

MICROBIOLOGIST



Wage range

\$2,700 - \$2,900
(25–29 years old)

\$5,000
(30 -34 years old)

Not available
(35 years old and above)

NTU

Bachelor's Degree in Bioengineering

SUPPLY				
2011	2012	2013	2014	2015
20	20	20	20	Not available

- Graduates are equipped with modern biological principles and advanced engineering methods in electronics, materials, mechanics, biocomputing and informatics to prepare them for the biomedical, biotechnology and health-care industries.

For recruitment matters, please contact:

(I) NTU Career & Attachment Office

Tel: 6790 5242

Email: cao@ntu.edu.sg

(II) Ms Lora Wong

Tel: 6790 4451

Email: mywong@ntu.edu.sg

MICROBIOLOGIST



Wage range

\$2,700 - \$2,900
(25–29 years old)

\$5,000
(30 -34 years old)

Not available
(35 years old and above)

NUS

Bachelor's Degree in Bioengineering

SUPPLY				
2011	2012	2013	2014	2015
70	70	80	90	100

- Graduates are taught how to apply the principles and tools of traditional engineering disciplines to analyse and solve problems in biology and medicine.

For recruitment matters, please contact:

(I) NUS Career Centre

Tel: 6516 1385

Email: careers@nus.edu.sg

(II) Mr Allan Seow

Email: allanseow@nus.edu.sg

MICROBIOLOGIST



Wage range

\$2,115
(25–29 years old)

Not available
(30–34 years old)

Not available
(35 years old and above)

NUS

Bachelor's Degree in Life Sciences

SUPPLY				
2011	2012	2013	2014	2015
380	370	410	430	400

- Graduates are equipped with analytical skills and are well prepared to take on research positions across diverse industries, such as research and scientific services, health-care and medical industries, as well as education and related professions.

For recruitment matters, please contact:

(I) NUS Career Centre

Tel: 6516 1385

Email: careers@nus.edu.sg

(II) Ms Josephine Cai

Email: caijosephine@nus.edu.sg

MANUFACTURING BIOTECHNOLOGIST



Wage range

\$2,115
(25–29 years old)

Not available
(30–34 years old)

Not available
(35 years old and above)

NTU

Bachelor's Degree in Bioengineering

SUPPLY				
2011	2012	2013	2014	2015
20	20	20	20	Not available

- Graduates are equipped with modern biological principles and advanced engineering methods in electronics, materials, mechanics, biocomputing and informatics to prepare them for the biomedical, biotechnology and health-care industries.

For recruitment matters, please contact:

(I) NTU Career & Attachment Office

Tel: 6790 5242

Email: cao@ntu.edu.sg

(II) Ms Lora Wong

Tel: 6790 4451

Email: mywong@ntu.edu.sg

MANUFACTURING BIOTECHNOLOGIST



Wage range

\$2,115
(25–29 years old)

Not available
(30–34 years old)

Not available
(35 years old and above)

NUS

Bachelor's Degree in Bioengineering

SUPPLY				
2011	2012	2013	2014	2015
70	70	80	90	100

- Graduates are taught how to apply the principles and tools of traditional engineering disciplines to analyse and solve problems in biology and medicine.

For recruitment matters, please contact:

(I) NUS Career Centre

Tel: 6516 1385

Email: careers@nus.edu.sg

(II) Mr Allan Seow

Email: allanseow@nus.edu.sg

MANUFACTURING BIOTECHNOLOGIST



Wage range

\$2,115
(25–29 years old)

Not available
(30–34 years old)

Not available
(35 years old and above)

NUS

Bachelor's Degree in Chemistry

SUPPLY				
2011	2012	2013	2014	2015
330	310	310	290	300

- Graduates are well versed in the theories of basic organic, inorganic, physical and analytical chemistry.
- Graduates are also proficient in the concepts of molecular modeling, survey of computational methods, molecular mechanics and force.

For recruitment matters, please contact:

(I) NUS Career Centre

Tel: 6516 1385

Email: careers@nus.edu.sg

(II) Ms Josephine Cai

Email: caijosephine@nus.edu.sg

MANUFACTURING BIOTECHNOLOGIST



Wage range

\$2,115
(25–29 years old)

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NUS

Bachelor's Degree in Life Sciences

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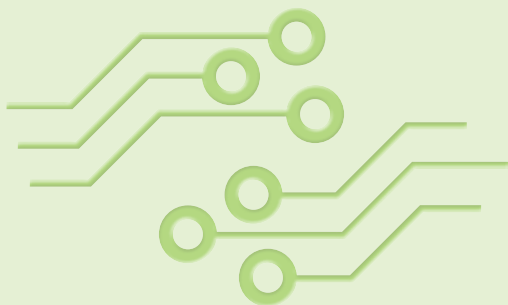
Tel: 6516 1385

Email: careers@nus.edu.sg

(II) Ms Josephine Cai

Email: caijosephine@nus.edu.sg

ELECTRICAL TECHNICIAN



Wage range

\$2,446
(25–29 years old)

\$2,890
(30–34 years old)

\$3,214
(35 years old and above)

SINGAPORE POLYTECHNIC

Diploma in Electrical and Electronics Engineering

SUPPLY				
2011	2012	2013	2014	2015
40	40	70	70	70

- Graduates are equipped with knowledge and skills in medical imaging, biomedical informatics, telemedicine and biomedical equipment design, maintenance and servicing.

For recruitment matters, please contact:

(I) SP Student Service Centre

Tel: 6772 1707

(II) Ee Sien Liang Glenn

Tel: 6772 1418

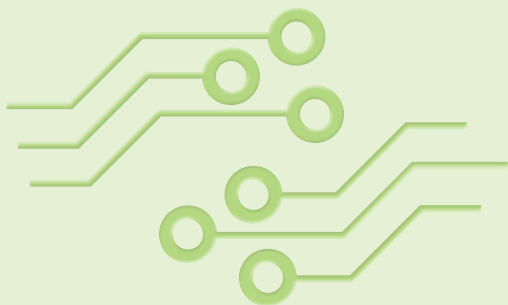
Email: ee_sien_liang_glenn@ sp.edu.sg

(III) Jaichandar K S

Tel: 6879 0628

Email: jai@sp.edu.sg

ELECTRICAL TECHNICIAN



Wage range

\$2,446
(25–29 years old)

\$2,890
(30–34 years old)

\$3,214
(35 years old and above)

SINGAPORE POLYTECHNIC

Diploma in Bioengineering

SUPPLY				
2011	2012	2013	2014	2015
30	50	40	40	40

- Graduates are equipped with knowledge ranging from managing clean-room environments as well as primary and secondary processes including process control, quality control, automation and packaging.

For recruitment matters, please contact:

(I) SP Student Service Centre

Tel: 6772 1707

(II) Ee Sien Liang Glenn

Tel: 6772 1418

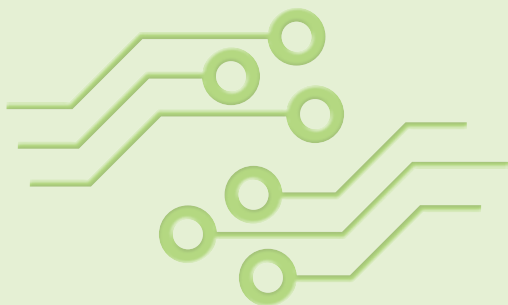
Email: ee_sien_liang_glenn@ sp.edu.sg

(III) Seng Lee Huang

Tel: 6870 4763

Email: leehuang@sp.edu.sg

ELECTRICAL TECHNICIAN



Wage range

\$2,446
(25–29 years old)

\$2,890
(30–34 years old)

\$3,214
(35 years old and above)

NGEE ANN POLYTECHNIC

Diploma in Electrical Engineering

SUPPLY				
2011	2012	2013	2014	2015
240	240	240	240	240

- Graduates have a good understanding of Electrical Circuit Analysis covering electrical theorems and techniques. They also learn the Electrical Installation Design, Circuit Theory and Analysis, Programmable Logic Controller Applications, etc.

For recruitment matters, please contact:

(I) NP Career Services

Tel: 6460 7300

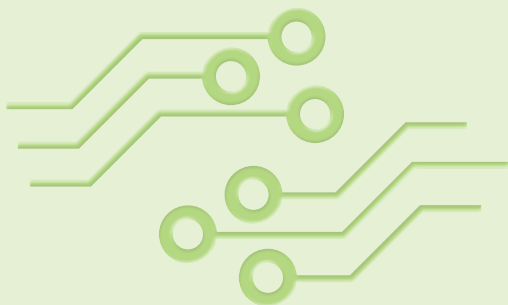
Email : Career_Services@connect.np.edu.sg

(II) Ms Annie Poon

Tel: 6460 8989

Email: psl@np.edu.sg

ELECTRICAL TECHNICIAN



Wage range

\$2,446
(25–29 years old)

\$2,890
(30–34 years old)

\$3,214
(35 years old and above)

TEMASEK POLYTECHNIC

Diploma in Electronics

SUPPLY				
2011	2012	2013	2014	2015
230	150	120	120	120

- Graduates are exposed to training in Motor and Drives, Control Systems, Op-amp, Power Electronics, Circuit Theory & Analysis, and Microcontroller Technology/Applications, etc. (Elective subjects: Aerospace Electronics, Robotics, Data Acquisition, Networking, etc.).

For recruitment matters, please contact:

(I) Career & Course Advising Office

Tel: 6780 5199

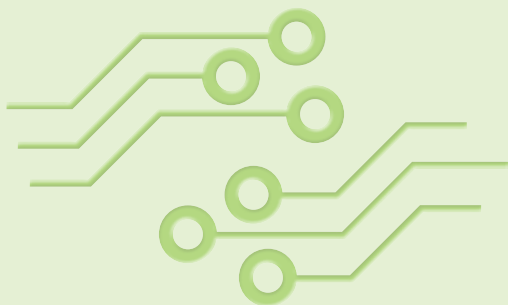
Email: ccaohotline@tp.edu.sg

(II) Mr Andrew Tham

Tel: 6780 6681

Email: kumweng@tp.edu.sg

ELECTRICAL TECHNICIAN



Wage range

\$2,446
(25–29 years old)

\$2,890
(30–34 years old)

\$3,214
(35 years old and above)

NANYANG POLYTECHNIC

Diploma in Electrical Engineering with Eco-Design

SUPPLY				
2011	2012	2013	2014	2015
-	-	50	50	50

- Graduates are equipped with expertise in green and sustainable technologies, clean energy, energy management solutions, smart grids and power systems engineering and electrical systems design; and conversant in business and management practices.

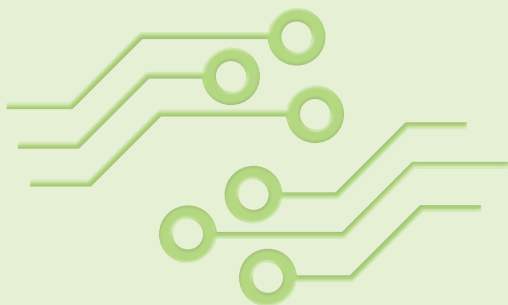
For recruitment matters, please contact:

Low Sow Kuan

Tel: 6550 0912

Email: LOW_Sow_Kuan@nyp.gov.sg

ELECTRICAL TECHNICIAN



Wage range

\$2,446
(25–29 years old)

\$2,890
(30–34 years old)

\$3,214
(35 years old and above)

ITE

NITEC in Electrical Technology (Power & Control)

SUPPLY				
2011	2012	2013	2014	2015
200	200	200	160	160

- Graduates have the skills and knowledge to maintain electrical installations, equipment and systems as well as telecommunication and data cabling systems in domestic premises, commercial buildings and industrial plants according to engineering specifications and relevant codes of practice.

For recruitment matters, please contact:

(I) Mrs Seow-Tang Hong Yong (ITE Survey & Career Services Dept)

Tel: 6590 2567

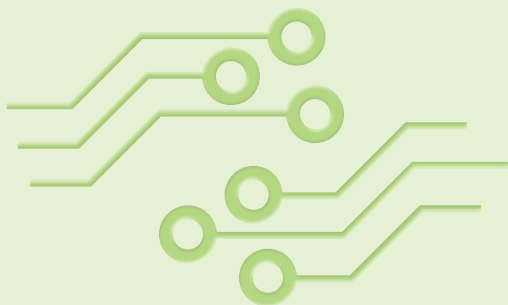
Email: Seow_Tang_Hong_Ying@ite.edu.sg

(II) Mr Joven Lee Li Yiat (ITE Survey & Career Services Dept)

Tel: 6590 2562

Email: Joven_Lee@ite.edu.sg

ELECTRICAL TECHNICIAN



Wage range

\$2,446
(25–29 years old)

\$2,890
(30–34 years old)

\$3,214
(35 years old and above)

ITE

Higher NITEC in Electrical Engineering

SUPPLY				
2011	2012	2013	2014	2015
230	230	230	230	230

- Graduates have the broad-based skills and knowledge in electrical engineering that include the operation, monitoring and maintenance of electrical installations and control systems used in residential, commercial and industrial premises according to engineering specifications, codes of practice and regulations.

For recruitment matters, please contact:

(I) Mrs Seow-Tang Hong Yong (ITE Survey & Career Services Dept)

Tel: 6590 2567

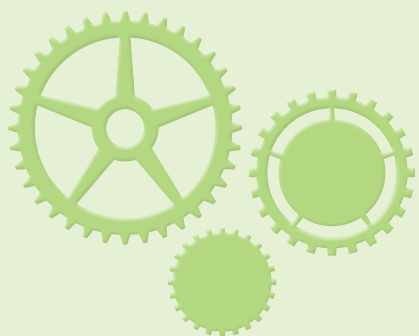
Email: Seow_Tang_Hong_Ying@ite.edu.sg

(II) Mr Joven Lee Li Yiat (ITE Survey & Career Services Dept)

Tel: 6590 2562

Email: Joven_Lee@ite.edu.sg

MECHANICAL TECHNICIAN



Wage range

\$2,237
(25–29 years old)

\$2,500
(30–34 years old)

\$2,949
(35 years old and above)

SINGAPORE POLYTECHNIC

Diploma in Mechatronics & Robotics

SUPPLY				
2011	2012	2013	2014	2015
120	90	110	90	90

- Graduates are equipped with skills in design and fabrication, industrial automation, microcontroller technology, programmable logic controller, etc.

For recruitment matters, please contact:

(I) SP Student Service Centre

Tel: 6772 1707

(II) Ee Sien Liang Glenn

Tel: 6772 1418

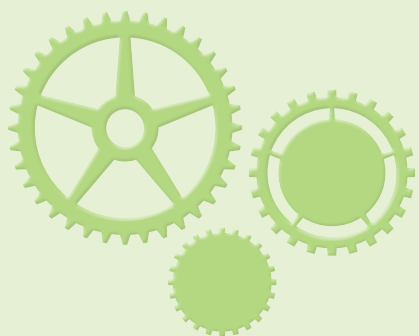
Email: ee_sien_liang_glenn@sp.edu.sg

(III) Lim Eng Wang

Tel: 6772 1549

Email: ewlim@sp.edu.sg

MECHANICAL TECHNICIAN



Wage range

\$2,237
(25–29 years old)

\$2,500
(30–34 years old)

\$2,949
(35 years old and above)

SINGAPORE POLYTECHNIC

Diploma in Mechanical Engineering

SUPPLY				
2011	2012	2013	2014	2015
200	210	250	260	260

- Graduates are equipped with skills in design and fabrication, industrial automation, microcontroller technology, programmable logic controller, etc.

For recruitment matters, please contact:

(I) SP Student Service Centre

Tel: 6772 1707

(II) Ee Sien Liang Glenn

Tel: 6772 1418

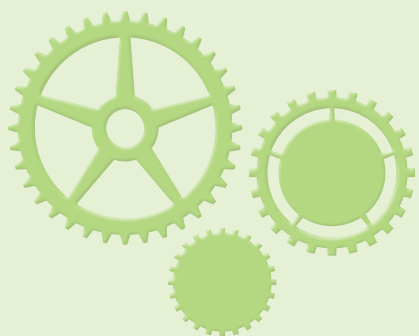
Email: ee_sien_liang_glenn@sp.edu.sg

(III) Lim Eng Wang

Tel: 6772 1549

Email: ewlim@sp.edu.sg

MECHANICAL TECHNICIAN



Wage range

\$2,237
(25–29 years old)

\$2,500
(30–34 years old)

\$2,949
(35 years old and above)

TEMASEK POLYTECHNIC

Diploma in Mechatronics

SUPPLY				
2011	2012	2013	2014	2015
250	180	210	210	210

- Graduates are equipped with skills in design and fabrication, industrial automation, microcontroller technology, programmable logic controller, etc.

For recruitment matters, please contact:

(I) Career & Course Advising Office

Tel: 6780 5199

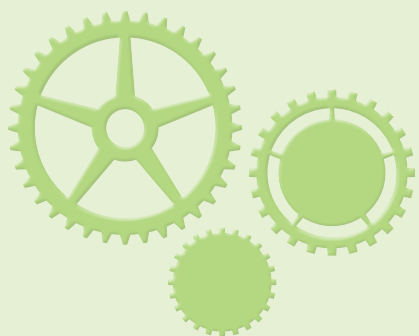
Email: ccaohotline@tp.edu.sg

(II) Mr Andrew Tham

Tel: 6780 6681

Email kumweng@tp.edu.sg

MECHANICAL TECHNICIAN



Wage range

\$2,237
(25–29 years old)

\$2,500
(30–34 years old)

\$2,949
(35 years old and above)

ITE

NITEC in Mechatronics (Automation Technology/ Equipment Assembly/ Medical Technology)

SUPPLY				
2011	2012	2013	2014	2015
400	360	360	360	360

- Graduates have the multidisciplinary skills and knowledge in installing, setting up, operating, maintaining and servicing industrial automated production equipment and systems.

For recruitment matters, please contact:

(I) Mrs Seow-Tang Hong Yong (ITE Survey & Career Services Dept)

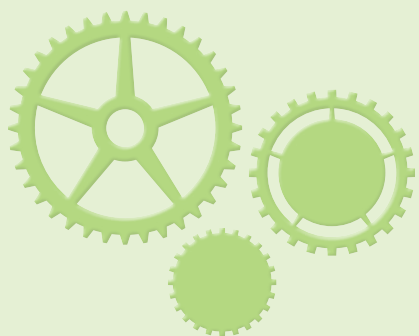
Tel: 6590 2567

Email: Seow_Tang_Hong_Ying@ite.edu.sg

(II) Mr Joven Lee Li Yiat (ITE Survey & Career Services Dept) Tel: 6590 2562

Email: Joven_Lee@ite.edu.sg

MECHANICAL TECHNICIAN



Wage range

\$2,237
(25–29 years old)

\$2,500
(30–34 years old)

\$2,949
(35 years old and above)

ITE

NITEC in Mechanical Technology

SUPPLY				
2011	2012	2013	2014	2015
300	300	300	300	300

- Graduates have the skills and knowledge to perform preventive and predictive maintenance programmes, maintain basic automation control systems and ensure the smooth operation of industrial and mechanical equipment. Graduates also have the foundation in the application of computerised machine conditioning monitoring systems and laser alignment techniques.

For recruitment matters, please contact:

(I) Mrs Seow-Tang Hong Yong (ITE Survey & Career Services Dept)

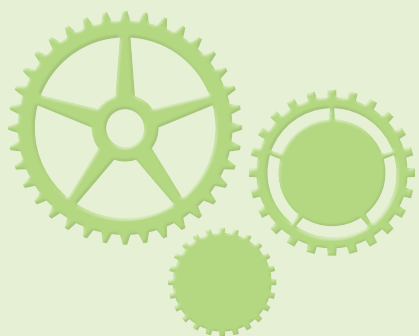
Tel: 6590 2567

Email: Seow_Tang_Hong_Ying@ite.edu.sg

(II) Mr Joven Lee Li Yiat (ITE Survey & Career Services Dept) Tel: 6590 2562

Email: Joven_Lee@ite.edu.sg

MECHANICAL TECHNICIAN



Wage range

\$2,237
(25–29 years old)

\$2,500
(30–34 years old)

\$2,949
(35 years old and above)

ITE

Higher NITEC in Mechatronics Engineering

SUPPLY				
2011	2012	2013	2014	2015
220	220	220	220	220

- Graduates have the broad-based skills and knowledge in electrical, electronics and mechanical disciplines to enable them to perform work involving assembling, installing, setting up, testing, commissioning and troubleshooting industrial automated equipment and systems.

For recruitment matters, please contact:

(I) Mrs Seow-Tang Hong Yong (ITE Survey & Career Services Dept)

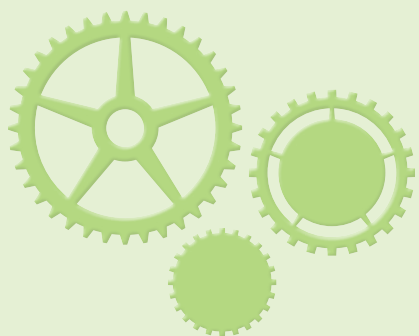
Tel: 6590 2567

Email: Seow_Tang_Hong_Ying@ite.edu.sg

(II) Mr Joven Lee Li Yiat (ITE Survey & Career Services Dept) Tel: 6590 2562

Email: Joven_Lee@ite.edu.sg

MECHANICAL TECHNICIAN



Wage range

\$2,237
(25–29 years old)

\$2,500
(30–34 years old)

\$2,949
(35 years old and above)

ITE

Higher NITEC in Mechanical Engineering

SUPPLY				
2011	2012	2013	2014	2015
360	360	360	360	360

- Graduates have the skills and knowledge to carry out technical support functions in mechanical engineering research, design, manufacture, operations and maintenance under the direction of mechanical engineers, technologists and associates in all stages of planning, design, maintenance and production.

For recruitment matters, please contact:

(I) Mrs Seow-Tang Hong Yong (ITE Survey & Career Services Dept)

Tel: 6590 2567

Email: Seow_Tang_Hong_Ying@ite.edu.sg

(II) Mr Joven Lee Li Yiat (ITE Survey & Career Services Dept) Tel: 6590 2562

Email: Joven_Lee@ite.edu.sg

CHEMICAL TECHNICIAN



Wage range

\$2,513
(25–29 years old)

\$3,027
(30–34 years old)

\$3,312
(35 years old and above)

NANYANG POLYTECHNIC

Diploma in Chemical & Pharmaceutical Technology

SUPPLY				
2011	2012	2013	2014	2015
120	120	130	130	130

- Graduates are equipped with a strong foundation in chemical and pharmaceutical technology with emphasis in areas such as petroleum refining, chemical plant operations, and pharmaceutical manufacturing to support manufacturing plants of major chemical and pharmaceutical companies.

For recruitment matters, please contact:

(I) Chong Tow Soon

Tel: 6550 0758

Email: Chong_Tow_Soon@nyp.gov.sg

(II) Tan Beng San

Tel: 6550 0756

Email: Tan_Beng_San@nyp.gov.sg

CHEMICAL TECHNICIAN



Wage range

\$2,513
(25–29 years old)

\$3,027
(30–34 years old)

\$3,312
(35 years old and above)

NGEE ANN POLYTECHNIC

Diploma in Chemical and Biomolecular Engineering

SUPPLY				
2011	2012	2013	2014	2015
110	110	110	110	110

- Graduates are able to understand the process of chemical reactions and design & optimisation of chemical processes. Graduates also have a good understanding of chemical and biological principles. These skills are relevant to the petrochemical and pharmaceutical and biopharmaceutical industries.

For recruitment matters, please contact:

(I) NP Career Services

Tel: 6460 7300

Email : Career_Services@connect.np.edu.sg

(II) Ms Annie Poon

Tel: 6460 8989

Email: psl@np.edu.sg

CHEMICAL TECHNICIAN



Wage range

\$2,513
(25–29 years old)

\$3,027
(30–34 years old)

\$3,312
(35 years old and above)

NGEE ANN POLYTECHNIC

Diploma in Pharmacy Science

SUPPLY				
2011	2012	2013	2014	2015
40	40	40	40	40

- Graduates would have a strong understanding of properties, analyses and formulation of pharmaceuticals. With their knowledge of pharmaceuticals and chemistry, they are suitable for employment in quality control/quality assurance and product development and formulation positions. These skills are relevant to the pharmaceutical and biopharmaceutical industries.

For recruitment matters, please contact:

(I) NP Career Services

Tel: 6460 7300

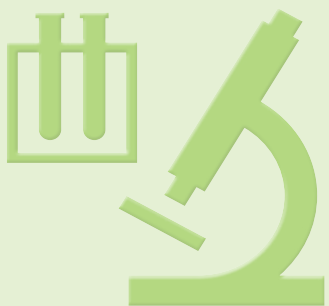
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Tel: 6460 8989

Email: psl@np.edu.sg

CHEMICAL TECHNICIAN



Wage range

\$2,513
(25–29 years old)

\$3,027
(30–34 years old)

\$3,312
(35 years old and above)

NGEE ANN POLYTECHNIC

Diploma in Molecular Biotechnology

SUPPLY				
2011	2012	2013	2014	2015
70	70	70	70	70

- Graduates have a good understanding of applied biological and chemical principles as required for relevant positions in quality control/quality assurance, product development and production. These skills are relevant to the pharmaceutical and biopharmaceutical industries.

For recruitment matters, please contact:

(I) NP Career Services

Tel: 6460 7300

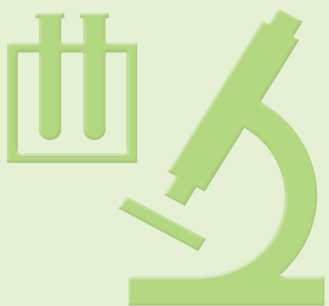
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Email: psl@np.edu.sg

CHEMICAL TECHNICIAN



Wage range

\$2,513
(25–29 years old)

\$3,027
(30–34 years old)

\$3,312
(35 years old and above)

SINGAPORE POLYTECHNIC

Diploma in Chemical Engineering

SUPPLY				
2011	2012	2013	2014	2015
120	120	120	120	120

- Graduates are equipped with knowledge ranging from membrane technology to clean energy to biopharmaceutical processing.

For recruitment matters, please contact:

(I) SP Student Service Centre

Tel: 6772 1707

(II) Ee Sien Liang Glenn

Tel: 6772 1418

Email: ee_sien_liang_glenn@sp.edu.sg

CHEMICAL TECHNICIAN



Wage range

\$2,513
(25–29 years old)

\$3,027
(30–34 years old)

\$3,312
(35 years old and above)

SINGAPORE POLYTECHNIC

Diploma in Applied Chemistry with Pharmaceutical Science

SUPPLY				
2011	2012	2013	2014	2015
120	150	110	150	130

- Graduates are equipped with knowledge ranging from analytical chemistry, laboratory management, good manufacturing practice to pharmaceutical processing.

For recruitment matters, please contact:

(I) SP Student Service Centre

Tel: 6772 1707

(II) Ee Sien Liang Glenn

Tel: 6772 1418

Email: ee_sien_liang_glenn@sp.edu.sg

CHEMICAL TECHNICIAN



Wage range

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(25–29 years old)

\$3,027
(30–34 years old)

\$3,312
(35 years old and above)

SINGAPORE POLYTECHNIC

Diploma in Biomedical Science

SUPPLY				
2011	2012	2013	2014	2015
80	80	80	80	80

- Graduates are equipped with knowledge and skills in chemical and biological analytics, molecular diagnostics and biologics production. They are also exposed to critical workplace concepts of quality control, quality assurance, biosafety and biorisks management.

For recruitment matters, please contact:

(I) SP Student Service Centre

Tel: 6772 1707

(II) Ee Sien Liang Glenn

Tel: 6772 1418

Email: ee_sien_liang_glenn@sp.edu.sg

CHEMICAL TECHNICIAN



Wage range

\$2,513
(25–29 years old)

\$3,027
(30–34 years old)

\$3,312
(35 years old and above)

SINGAPORE POLYTECHNIC

Diploma in Biotechnology

SUPPLY				
2011	2012	2013	2014	2015
90	80	80	80	80

- Graduates are equipped with knowledge and skills to perform chemical and biological testing. They are also equipped with knowledge on biorisk and biosafety management.

For recruitment matters, please contact:

(I) SP Student Service Centre

Tel: 6772 1707

(II) Ee Sien Liang Glenn

Tel: 6772 1418

Email: ee_sien_liang_glenn@sp.edu.sg

CHEMICAL TECHNICIAN



Wage range

\$2,513
(25–29 years old)

\$3,027
(30–34 years old)

\$3,312
(35 years old and above)

TEMASEK POLYTECHNIC

Diploma in Chemical Engineering

SUPPLY				
2011	2012	2013	2014	2015
40	40	40	50	50

- Graduates are equipped with knowledge ranging from membrane technology, clean energy and petrochemicals to biopharmaceutical processing. Graduates are equipped with skills needed to perform analytical work in quality control, chemical analysis and research laboratories.

For recruitment matters, please contact:

(I) Career & Course Advising Office

Tel: 6780 5199

Email: ccaohotline@tp.edu.sg

(II) Mr Lim Teng Kuan

Tel: 6780 6424

Email: tengkuan@tp.edu.sg

CHEMICAL TECHNICIAN



Wage range

\$2,513
(25–29 years old)

\$3,027
(30–34 years old)

\$3,312
(35 years old and above)

TEMASEK POLYTECHNIC

Diploma in Pharmaceutical Science

SUPPLY				
2011	2012	2013	2014	2015
20	20	30	30	30

- Graduates are equipped with knowledge ranging from drug analysis, drug discovery to pharmaceutical manufacturing.

For recruitment matters, please contact:

(I) Career & Course Advising Office

Tel: 6780 5199

Email: ccaohotline@tp.edu.sg

(II) Mr Tay Boon Keat

Tel: 6780 6428

Email: bktay@tp.edu.sg

CHEMICAL TECHNICIAN



Wage range

\$2,513
(25–29 years old)

\$3,027
(30–34 years old)

\$3,312
(35 years old and above)

TEMASEK POLYTECHNIC

Diploma in Biomedical Informatics & Engineering

SUPPLY				
2011	2012	2013	2014	2015
70	70	80	80	80

- Graduates are equipped with knowledge in medical instrumentation and devices, bioinformatics and microcontroller technology.

For recruitment matters, please contact:

(I) Career & Course Advising Office

Tel: 6780 5199

Email: ccaohotline@tp.edu.sg

(II) Mr Andrew Tham

Tel: 6780 6681

Email: kumweng@tp.edu.sg

CHEMICAL TECHNICIAN



Wage range

\$2,513
(25–29 years old)

\$3,027
(30–34 years old)

\$3,312
(35 years old and above)

REPUBLIC POLYTECHNIC

Diploma in Biomedical Sciences

SUPPLY				
2011	2012	2013	2014	2015
230	280	310	170	170

- Graduates are equipped with knowledge on human health, diseases and diagnostic techniques.

For recruitment matters, please contact:

Ms Tan Fong Ling/Mr Alfred Lee (Office of Industry & Collaboration)

Tel: 3100 1536

Email: career@rp.sg

CHEMICAL TECHNICIAN



Wage range

\$2,513
(25–29 years old)

\$3,027
(30–34 years old)

\$3,312
(35 years old and above)

REPUBLIC POLYTECHNIC

Diploma in Biotechnology

SUPPLY				
2011	2012	2013	2014	2015
100	200	130	130	130

- Graduates are equipped with knowledge on Molecular and Cell Biology, Recombinant DNA Technologies, Industrial and Food Biotechnology, Bioprocess Technology, Cell Culture, Nutrition and Food Science.

For recruitment matters, please contact:

Ms Tan Fong Ling/Mr Alfred Lee (Office of Industry & Collaboration)

Tel: 3100 1536

Email: career@rp.sg

CHEMICAL TECHNICIAN



Wage range

\$2,513
(25–29 years old)

\$3,027
(30–34 years old)

\$3,312
(35 years old and above)

REPUBLIC POLYTECHNIC

Diploma in Pharmaceutical Sciences

SUPPLY				
2011	2012	2013	2014	2015
150	230	210	290	200

- Graduates are exposed to training in clinical skills in Pharmacy Practice and Good Manufacturing Practice.

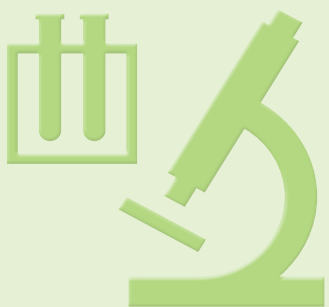
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Ms Tan Fong Ling/Mr Alfred Lee (Office of Industry & Collaboration)

Tel: 3100 1536

Email: career@rp.sg

CHEMICAL TECHNICIAN



Wage range

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(25–29 years old)

\$3,027
(30–34 years old)

\$3,312
(35 years old and above)

ITE

NITEC in Chemical Process Technology (Biologics/ Petrochemicals/ Pharmaceuticals/ Process Instrumentation)

SUPPLY				
2011	2012	2013	2014	2015
200	200	200	200	200

- Graduates have the operational skills and technical knowledge in maintaining the manufacturing operation or process operation by monitoring and controlling manufacturing or process variables in any manufacturing or process plant.

For recruitment matters, please contact:

(I) Mrs Seow-Tang Hong Yong (ITE Survey & Career Services Dept)

Tel: 6590 2567

Email: Seow_Tang_Hong_Ying@ite.edu.sg

(II) Mr Joven Lee Li Yiat (ITE Survey & Career Services Dept)

Tel: 6590 2562

Email: Joven_Lee@ite.edu.sg

List of CET Centres and WSQ Courses Relevant for the Biomedical Science Industry

DPS Engineering (S) Pte Ltd



WSQ Higher Certificate in Process Technology (Pharmaceuticals/Biologics Manufacturing)

- Graduates are equipped with the practical knowledge and skills to operate user points on water distribution systems, prepare equipment systems for cleaning and reinstate the clean room environment post operations. They are taught how to operate and maintain a controlled clean-room environment. Graduates are also competent to handle cell cultures – both microbial and mammalian, maintain cell cultures in a pure state during the upstream and fermentation stages, and identify and maintain requirements for aseptic environmental and processing conditions.

Contact details:

**6 Battery Road,
#37-03, Singapore 049909
Tel: 6513 9500
Fax: 6538 3778
Email: training@dpseng.com.sg**

SPECIAL FEATURE: OTHER VIABLE SOURCES OF MANPOWER

As the labour market tightens, businesses will need to tap on new sources of manpower to support their growth. Back-to-work women and older workers represent viable sources of manpower that employers could consider, especially in the current tight labour market. This section outlines the characteristics and profiles of economically inactive women and older workers so that employers can better understand their job preferences and better leverage them to meet manpower demands.

Economically inactive women

In 2010, there were 900,000 resident females in the labour force. Nonetheless, there is a sizeable pool of economic inactive females. The proportion of female residents of prime working age 25–54 not in employment was 28.3%. A survey conducted by MOM indicated that the vast majority of economically inactive women are looking for part-time work arrangements as it allows them to balance work commitments with their family responsibilities. The availability of part-time/flexible work arrangements, followed by having jobs near home, was the main motivator that could influence a sizeable number of economically inactive women who are not intending to work to do so.

Potential female entrants with relevant tertiary qualifications are suitable for project or freelance work, for example, in the IT industry. They could also serve as a complementary source of labour to students working part-time, for example, in the F&B industry, as students might not be able to work at certain times or during exam periods. Much can be done to attract women back to the workforce by promoting flexible working arrangements, reaching out to potential entrants, training those who are interested to return to work and providing support for childcare.



Older workers

In 1998, our resident older workers population (aged 55 and above) was 14%. This will increase to 27% by the year 2020.

Research¹ had shown that there is no significant difference between the job performance of older and younger workers older workers. Positions that older workers could perform better are those which require relationship forged between business partners where experience and understanding is critical. Examples of such jobs are retail, counselling, social services and consultancy. Also, in jobs that require a substantial amount of training and experience such as professional and highly technical work, older workers can maintain high levels of performance.

As Singapore moves towards a knowledge-based economy, age may become less important than skills in sustaining employment. In addition, the growing importance of the services industry, in fact, augurs well for the employment of older workers, as the nature of work will be less dependent on physical stamina but requires softer skills, for example, communications and service delivery.

The Government will enact re-employment legislation by 2012 to enable more people to continue working beyond the current statutory retirement age of 62. Older workers will form the core pool of manpower supply as the population ages, and employers will have to think about how to better tap on older workers. Some of the measures to promote the employment of older workers in Singapore include the extension of the retirement age, reduction in the cost of employing older workers, guidelines on non-discriminatory job advertisements and skills retraining of older workers. While the various measures can contribute to the continued employment of older workers, success hinges on employers changing their attitudes so as not to base employment decisions on preconceived ideas about age.

¹ Warr, P. (1994); 'Age and job performance', in Snel, J. and Cremer, R. (1994).



List of Community Development Councils for Tapping on Older Workers and Back-to-Work Women

CENTRAL

Contact details:

Central Singapore CDC Main Office, HDB Hub Bizthree
490 Lorong 6 Toa Payoh, #04-10, Singapore 310 490

Tel: 6370 9901

Fax: 6370 9928

Email: feedback@centralsingapore.org.sg

NORTHEAST

Contact details:

North East Community Development Council,
300 Tampines Ave 5 #06-01, NTUC Income Tampines Junction, Singapore 529653

Tel: 6424 4000

Fax: 6424 4066

Email: ask@northeast.org.sg

NORTHWEST

Contact details:

(I) 900 South Woodlands Drive
#01-04 Woodlands Civic Centre, Singapore 730900.

Tel: 6767 2288

Fax: 6219 1176

Email: Northwest_CDC@pa.gov.sg

(II) 170 Ghim Moh Road #06-01
Ulu Pandan Community Building, Singapore 279621.

Tel: 6463 3626

Fax: 6469 0403

Email: Northwest_CDC@pa.gov.sg

*List of Community Development Councils for
Tapping on Older Workers and Back-to-Work Women*

SOUTHEAST

Contact details:

South East Community Development Council
10 Eunos Road 8 #02-01, Singapore 408600
Tel: 6243 8753
Fax: 6243 3130
Email: southeast_cdc@pa.gov.sg

SOUTHWEST

Contact details:

South West Community Development Council (Service Centre)
The JTC Summit
8 Jurong Town Hall Road, #03-11 Singapore 609434
Tel: 6316 1616
Fax: 6316 7251
Email: southwest_cdc@pa.gov.sg

WOMEN'S DEVELOPMENT SECRETARIAT

Contact details:

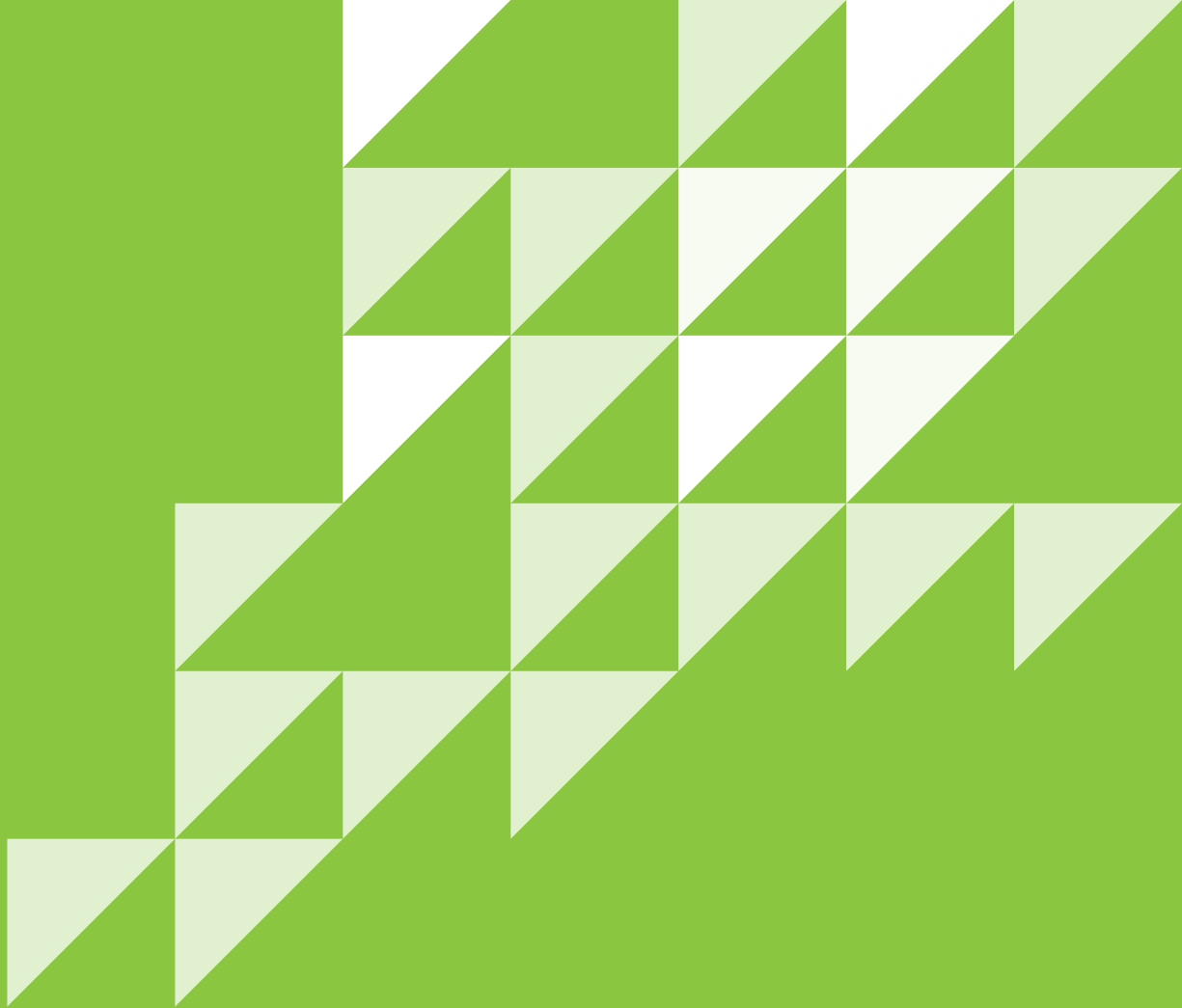
Ms Poh Poh Hong
Tel: 6213 8269
Email: pohph@ntuc.org.sg

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Ministry of Education (MOE)
Nanyang Polytechnic (NYP)
Nanyang Technological University (NTU)
National University of Singapore (NUS)
Ngee Ann Polytechnic (NP)
Republic Polytechnic (RP)
Singapore Management University (SMU)
Singapore Polytechnic (SP)
Singapore Workforce Development Agency (WDA)
Spring Singapore (SPRING)
Temasek Polytechnic (TP)

We would also like to thank other partners who have helped in the development of Manpower Resources Guide.



MINISTRY OF
MANPOWER