



## [2020.] Academic Performance and Career Plan

This template provides the basis for an annual discussion between you and your Line Manager or their delegate, with the objective of identifying your future career development needs, reviewing your activities and achievements over the past year, and planning your work for the next year. Your Academic Portfolio, available in the Business Intelligence Dashboards in the Staff Portal, will provide you with easy access to some of the teaching and research data that you may wish to use as evidence of your achievements. You will need to complete the form and update your CV, and then submit a copy of both by uploading them in Employee Kiosk under the 'Performance and Career Planning' option from the menu; this should be done prior to meeting with your Line Manager or delegate, in order to facilitate the discussion. Following the discussion and agreement with your Line Manager or delegate, the final version of your plan should be uploaded in Employee Kiosk for final approval by your Line Manager / delegate.

Your Academic Performance and Career Plan document should be aligned with the Academic Capability Framework, with reference to Teaching, Research and Engagement activities. The areas of focus within the Academic Capability Framework will be different for each individual, depending on discipline area, role, academic level, stage of career and achievement relative to opportunity. All academic staff, irrespective of role, are expected to address the Engagement category.

DETAILS			
Staff ID number	226167g	Title	Dr.
First name	Benchawan	Last name	Wiwatanapataphee
Position title	Associate Professor	Date commenced at Curtin	1 January 2015
Faculty and School (or equivalent)	Faculty of Science and Engineering, School of EECMS	Name of Head of School (or equivalent)	Andrew Rohl
Academic level (tick one)	A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input checked="" type="checkbox"/> E <input type="checkbox"/>		
Role (tick one)	Teaching & Research <input checked="" type="checkbox"/> Research Allocation 40 % Teaching Academic <input type="checkbox"/> iSoLT Allocation % Research Academic <input type="checkbox"/> Teaching Allocation % Other <input type="checkbox"/> Click or tap here to enter text.		
Fractional appointment	No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> If yes, what fraction? Click or tap here to enter text.		
Early Career Academic (normally within 5 years of date of award of doctoral degree)	No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> If yes, date of conferral? Click or tap to enter a date.		
Career Breaks (list any periods of more than 6 weeks continuous leave taken over the past year or intended to be taken over the next year)	No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> If yes, list details Click or tap here to enter text.		
Flexible work arrangements (list type(s) of flexibility that were used over the past year or required over the next year e.g. changes in start and finish times due to carer responsibilities)	No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> If yes, list details Click or tap here to enter text.		



## Career Development

*Think about your overall career trajectory and where you would like to progress with your career in the next 3 years. What support might you need to get there, and what might impede your progress?*

### 3-YEAR CAREER DEVELOPMENT PLAN

*What are your career aspirations over the next 3 years?*

I will contribute to international collaboration for articulation programs with universities in Thailand and China, and continue to have more articulation partners including Khon Kaen University, Prince of Songkla University, and Maejo University. I will also make substantial contribution to achieve research excellence and publish research papers in top journals.

*What do you see as the present challenges and opportunities in advancing your career?*

Mathematical research problems for the 21<sup>st</sup> century have involved machine learning that are at the forefront of the modern **data science** and artificial intelligence. The research includes a balanced **combination** of **mathematical** foundations, such as advanced numerical analysis (FEM), advanced linear algebra, **optimization**, high-dimensional statistics, etc. As I have solid knowledge in these mathematical foundations, it is a great opportunity to have more PhD students in development of deep learning algorithms for solving PDEs.

*What professional development opportunities do you propose, in order to advance your career development or to address any gaps in your breadth of experience?*

I propose to have *professional development opportunities in the leadership training* such as Online course for professional development, leadership + management and collaboration at <https://learning.linkedin.com/>



## [2020.] Review of Achievements

*In reviewing your activities over the last 12 months, did you achieve everything that was in your Work Plan from the previous year? Were you supported in reaching your milestones / achievements? What other achievements would you like to highlight, including a review of your principal achievements over the last 3 years?*

*For new employees, or if you have not participated in a conversation previously, review your work to date and identify highlights, key achievements and opportunities.*

### PERFORMANCE REVIEW

#### TEACHING

*If you are a Teaching Academic, you will need to include iSoLT (Innovation and Scholarship of Learning and Teaching) activities as part of your review.*

#### Develop high quality curricula and assessment, and Provide excellent teaching and student support

- I am the unit coordinator for 5 units:  
INDE2000 Supply Chain Modelling and Optimisation (UG) semester 1  
INDE5000 Supply Chain Modelling and Optimisation (PG) semester 1  
MATH3004 Industrial Project (UG) semester 1  
MATH5004 Advanced Numerical Analysis (PG) semester 2  
Advanced Topics in Applied and Computational Mathematics at Yanshan University (UG)
- I am a lecturer-in-charge for 4 units:  
INDE2000 Supply Chain Modelling and Optimisation (UG) semester 1  
INDE5000 Supply Chain Modelling and Optimisation (PG) semester 1  
MATH5004 Advanced Numerical Analysis (PG) semester 2  
Advanced Topics in Applied and Computational Mathematics at Yanshan University (UG)
- Averaged unit overall satisfaction rate for above units so far in 2020: 90%
- Successful delivery across a range of teaching modes such as face-to-face and online.
- Project units also include technology-based learning.
- Excellent support to students for individual consultation and advice.

#### Engage in scholarship and innovation

- I am the principal supervisor for two PhD students:  
19068291 Fahad Mesfer M Aljuaydi  
19190107 Manlika Ratchagit
- I am co-supervisor for four PhD students:  
19711812 Chuanye Gu  
18280036 Otaif Amani Ahmed A  
12176016 Nan Li (completed in 2020)  
19185501 Nabubie Bashiruddin  
18964026 Na Wei (completed in 2020)  
18485938 Yu Yang (graduated in 2020)  
18792405 Rui Li (graduated in 2020)
- I also supervised the following Masters and UG project students  
19700674 Lin Gao - UG project "Weather data analysis: temperature prediction"  
19702379 Bowen Zhao - UG project "A second order traffic-flow model : Supply and demand analysis"  
19702405 Mingxuan Zhu- UG project "Effect of weather on Traffic flow in Perth"  
18854509 Callum Bell - UG project "Numerical study of Heat transfer in the ground"  
18817023 Callan Germain - UG project "Coronarios spread : Analysis"  
19149594 Kayne Joy - UG project "Effect of weather on Traffic incicentsw"  
18516948 Parvin Khanom - UG project "Rainfall analysis in Perth Western Australia"  
19147132 Oliver Parry - UG project "Lane by Lane traffic Analysis"  
19167017 Gillian Rackham - UG project "Scheduling for a Berry Farm"  
19150907 Olivia Silvey - UG project "Fresh milk transportation problem in Western Australia"



19877691 Methinee - UG project "Analysis of an American option using Black-Scholes model with 2 assets"  
 19877701 Siravich - UG project "Analysis of an European option using Black-Scholes model with 2 assets"  
 17754530 Tony Ha – PG project "Numerical Analysis of blood flow in stenosed Left coronary artery"  
 19702159 Liyuan Zhang – PG project "Traffic prediction using Bi-LSTM method"  
 20044729 Appah Hobart – PG project "Simulation of stock price using geometric Brownian motion: a case study of Nike stock pricing"

- For PhD students and project students, the supervision includes Introduction of professional, industry or work-based practices and experiences into the curriculum

*Line Manager's (or delegate) comments:*

Benchawan has made significant contribution in her teaching having been the unit coordinator for five units this year, both onshore and offshore. The achievement of outstanding student feedback via eVALUate on these units has been very impressive. In addition to her coursework teaching, Benchawan is active in project supervision at undergraduate and postgraduate levels and she organizes realistic industry projects for her students. Benchawan has informed us that she would like to work more closely with second-year and beyond Advanced Science students majoring in Mathematics and Data Science in the hope that these students will transition into Hons and PhD studies with her to pursue further research opportunities. We are highly supportive of this plan.

*Is overall teaching performance satisfactory? If no, please elaborate below.*

No  Yes

Click or tap here to enter text.

## RESEARCH

*If you are a Teaching Academic, you may wish to leave this section blank.*

### Build research capacity

- Effective student research training for an ARC linkage project, and co-supervision with 2 HDR student completions as listed in the previous section.
- Effective development of collaborative network with MAINROADS WA (MRWA).
- Effective research leadership and mentoring for two junior academic visitors:
  - Dr Weenakorn Leosanurak (Khon Kaen University) working on "Data analysis of traffic air pollution" from 7 October 2019 to 1 October 2020.
  - Dr Nattawan Chuchalerm (Mahidol University) working on "Optimal control of air flow in a channel with moving wall" from 15 July 2019 to 14 July 2020.

### Initiate and sustain programs of 'researcher-driven' and 'demand-driven' research

- I hold one ARC research grant: ARC Project LP170100341, 2018-2021 (other CI: YH Wu)
- The linkage grants also include funding from industry and the projects are also 'demand-driven' to some degree.



### Generate value and Impact through research outputs

- Published 4 peer-reviewed journal articles:
  - 1) X Zhang, J Jiang, Y Wu, B Wiwatanapataphee, Iterative properties of solution for a general singular n-Hessian equation with decreasing nonlinearity, Applied Mathematics Letters, 106826. (Q1, H Index 85)
  - 2) G Keady, B Wiwatanapataphee, Variational Approximations for Steady Unidirectional Slip Flows in Microchannels, Journal of Fluids Engineering 142 (7) (Q1, H Index 98)
  - 3) Y Zhang, Y Wu, B Wiwatanapataphee, F Angkola, Asset liability management for an ordinary insurance system with proportional reinsurance in a CIR stochastic interest rate and Heston stochastic volatility framework, Journal of Industrial & Management Optimization 16 (1), 71 (Q2, H Index 29)
  - 4) M Ratchagit, B Wiwatanapataphee, N Dokuchaev, The m-delay Autoregressive Model with Application, CMES-Computer Modeling in Engineering and Sciences 122 (2), 487-504 (Q3, H Index 59)
- Keynote speaker for FAST Conference: SCIEATHIC 2020 held in Malaysia 1 Dec 2020.
- Invited speaker for international conference in Mathematics and Application held in Bangkok 18 Dec 2020.

### Enhance the accessibility and impact of research to external stakeholders

- Quarterly project meeting and effective use of media for communication of research results with industrial partners.

### Line Manager's (or delegate) comments:

Benchawan currently has an ARC Linkage grant which has kept her research busy for this year. She has made use of this to good effect by successfully publishing four journal publications this year. Her plan to incorporate machine learning into her research in data analytics would provide the opportunity to expand her research and will enable her to develop further collaborations with other researchers (i.e. Computing) within the School as well as others outside the School. She has also identified areas in medical and health science research that she would like to pursue having had that experience when she was an academic in Thailand. She is also keen to re-establish her research links with key universities in Thailand in this area of research.

Is overall research performance satisfactory? If no, please elaborate below.

No  Yes

Click or tap here to enter text.



## ENGAGEMENT

### Advance the profession and discipline

- Serving Committees:
  - Assistant postgraduate coordinator to evaluate a number of post graduate student applications for Maths & Stats discipline
  - Member of Curtin Institute for Computation & Simulation at <https://computation.curtin.edu.au/research/researchers/simulation/>
  - Member of Editorial board of international journal of multivariate data analysis (IJMDA)
  - Member of Editorial board of Cogent Mathematics and Statistics <https://www.cogentoa.com/journal/mathematics-and-statistics/editors>
- Refereeing papers
  - Alexandria Engineering Journal
  - International Communications in Heat and Mass Transfer (Elsevier)
  - Cogent Mathematics
  - Applied Sciences
  - IEEE Access
  - International Journal of Fluid Mechanics Research
  - MDPI
- Refereeing EECMS Project
  - Twelve Small Grant Projects

### Strengthen connections with global partners and Campuses

- Articulation programs between Mahidol University and Curtin University:
  - Assistant articulation-program coordinator for 2 degrees: (1) Bachelor of Science (Actuarial Science); (2) Bachelor of Science (Industrial Optimisation)

### *Line Manager's (or delegate) comments:*

Benchawan's professional engagement extends to both industries and academia where she successfully used her influences and skills to maximum the outcomes in teaching and research. Further to this, she would like to focus her engagement activity in the area of medical/health data analytics. This is timely as this is part of Curtin's strategy to growth the health data analytics capability through capacity building in clinical, public health and data science research areas. This will provide the right platform for Benchawan to realise this plan.

*Is overall engagement performance satisfactory? If no, please elaborate below.*

No  Yes

Click or tap here to enter text.



## [2021.] Work Planning

List the principal activities and achievements you have planned for the next year, taking into account your review of the past year's achievements and your own career objectives. Your proposed activities and achievements should be aligned with the Academic Capability Framework.

WORK PLAN
<p><b>TEACHING</b> If you are a Teaching Academic, you will need to include iSoLT (Innovation and Scholarship of Learning and Teaching) activities as part of your work plan.</p> <ul style="list-style-type: none"> <li>• Unit coordinator for the following units: INDE2000 Supply Chain Modelling and Optimisation UG level semester 1 INDE5000 Supply Chain Modelling and Optimisation PG level semester 1 MATH3004 Industrial Project UG level MATH5004 Advanced Numerical Analysis (PG) semester 2 Advanced Topics in Applied and Computational Mathematics at Yanshan University (UG)</li> <li>• Principal Supervisor for 3 PhD students 19068291 Fahad Mesfer M Aljuaydi 19190107 Manlika Ratchagit 20006774 MD Mohidul Haque (expected to start in research term 1, 2021))</li> <li>• Co-supervisor for 2 PhD students 19711812 Chuanye Gu 18280036 Otaif Amani Ahmed A</li> <li>• Supervisor for 8 Masters/UG projects students</li> </ul> <p>)</p>
<p><b>RESEARCH</b> If you are a Teaching Academic, you may wish to leave this section blank.</p> <ul style="list-style-type: none"> <li>• Undertake research for an ARC research grant project: ARC Linkage Project Number LP170100341 "Improving Road Network Operations under Non-Recurrent Events"; and carry out research in applied and computational mathematics to support the ARC project and to enhance Curtin's strength and ranking in this important disciplinary area.</li> <li>• Published three research articles in peer-reviewed international journals;</li> <li>• Contribute to research activities (conference, international collaboration etc) for maintaining/enhancing our high academic standard and ranking.</li> </ul>

**ENGAGEMENT****Advance the profession and discipline**

- Continue providing service to the Discipline and the Univ on various roles:
  - Assistant postgraduate coordinator to evaluate post graduate student applications for Maths & Stats discipline
  - Member of Curtin Institute for Computation & Simulation at <https://computation.curtin.edu.au/research/researchers/simulation/>
  - Member of Editorial board of international journal of multivariate data analysis (IJMDA)
  - Member of Editorial board of Cogent Mathematics and Statistics <https://www.cogentoa.com/journal/mathematics-and-statistics/editors>
- Continue to provide service to professional societies and to international journals as a reviewer
- Continue to work with industrial partners in particular Main Roads WA for the ARC linkage project.

**Strengthen connections with global partners and Campuses**

- Continue supporting two articulation programs between Mahidol University and Curtin University:  
Bachelor of Science (Actuarial Science); (2) Bachelor of Science (Industrial Optimisation)
- Develop a new articulation program between Khon Kaen University and Curtin University:  
Bachelor of Science (Industrial Optimisation)
- Develop a new articulation program between Maejo University and Curtin University:  
Bachelor of Science (Industrial Optimisation)



**LEAVE PLANS**

*When do you propose to take your 4 weeks annual leave?*

2 weeks in January, 1 week in June, and 1 week in December

*What other leave (e.g. Long Service Leave) plans do you have in the coming year?*

**ACKNOWLEDGEMENT**

This Academic Performance and Career Plan document has been discussed and agreed with my Line Manager (or their delegate).

<b>Line manager (or delegate) name</b>	Tele Tan, Yong Hong Wu	<b>Date</b>	2/12/2020
<b>Staff member name</b>	Benchawan Wiwatanapataphee	<b>Date</b>	2/12/2020

*Do you have any comments or feedback you wish to add about the conversation that you have had with your Line Manager (or delegate)?*

Click or tap here to enter text.