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1. MESSAGE FROM THE DIRECTOR OF ANGKASA

Assalamualaikum warahmatullahi wabarakatuh, peace be upon you.

First and foremost, I would like to congratulate the Institute of Space Science (ANGKASA) Graduate Studies Committee chaired by Prof. Dr. -Ing. Nik Abdullah Nik Mohamed, for successfully publishing the second edition of the ANGKASA Graduate Studies Guide Book. I am very proud by the commitment of the committee members in compiling information into a structured guide book for the benefit of ANGKASA graduate students.

ANGKASA was established in August 2003 as part of the university’s strategy to build up capacity in the field of space science and technology. It has the mission to lead research and education in space related fields for peaceful applications, promote their importance for national development and support the national space programs. ANGKASA has outstanding researchers in key areas including astronautics, astronomy and astrophysics, remote sensing, antenna technology, biomedical engineering, and the other space related sciences. ANGKASA has also been actively involved in setting an international network of collaborations to further its research agenda in space science such as Malaysia’s participation in the International Space Weather Initiative (ISWI).

With the publication of this Guide Book, it is hoped that (1) it provides information and guidance for graduate students to be informed of ANGKASA research interest and the requirements for admission to ANGKASA programs, (2) it helps students understand the procedures/responsibilities as ANGKASA graduate students, (3) it guides students to reach a competent level of research as well as the achievement of excellent interpersonal skills and the capacity to contribute effectively to society, and (4) it informs students of the facilities provided by ANGKASA for their wise and responsible use.

I take this opportunity to convey my highest regard and appreciation to the Graduates Studies Committee of ANGKASA and all parties involved in the preparation of this Guide Book. I also congratulate all students who have been accepted to the ANGKASA community hoping that the students will take this opportunity to pursue knowledge to their utmost and become excellent ANGKASA graduates. Finally, we wish that this Graduates Studies Guide Book will be fully utilized by students and staff alike for achieving the above.

Thank you.

PROF. DR. MOHD. ALAUDDIN MOHD. ALI
DIRECTOR
Institute of Space Science (ANGKASA)
Universiti Kebangsaan Malaysia
2. ANGKASA ORGANISATIONAL CHART

- **Director**
  - Prof. Dr. Mohd. Alauddin Mohd. Ali

- **Deputy Director**
  - Prof. Dr. -Ing. Nik Abdullah Nik Mohamed

- **Head of Quality Assurance**
  - Dr. Kalaivani Chellapan

- **Webmaster**
  - Dr. Gan Kok Beng

- **Principal Research Fellow**
  - Dato' Dr. Sheikh Muszaphar Shukor Al-Masrie
  - Prof. Dr. Mohammad Tariqul Islam
  - Prof. Dr. T Prakash G. Thamburaj

- **Senior Research Fellow**
  - Assoc. Prof. Dr. Wayan Suparta

- **Research Fellow**
  - Dr. Gan Kok Beng
  - Dr. Kalaivani Chellapan
  - Dr. Elwaleed Awad Khidir
  - Dr. Sabirin Abdullah
  - Dr. Mohd. Rashed Iqbal Faruque
  - Dr. Rosmina Jaafar

- **Assistant Registrar**
  - Noor Hayati Ahmad Rasol

- **Research Officer**
  - Noridawaty Mat Daud
  - Siti Aminah Bahari

- **Science Officer**
  - Mohd. Roszaini Roslan
  - Nurul Hajjah Hair

- **Technician**
  - Mohd. Azlan Shah Jaafar
  - Noor Shuhairah Rejab

- **Administrative Assistant (S)**
  - Syed Muhammad Asyraf Syed Le

- **Administrative Assistant (P/O)**
  - Mohd. Sayuti Che Hamid

- **Junior General Assistant**
  - Mohd. Zaki Kalyubi
  - Mohd. Amin Saidin
3. ANGKASA’S FELLOWS

DIRECTOR

Prof. Dr. Mohd. Alauddin Mohd. Ali
Research Interest: Biomedical Signal Processing, Instrumentations Microelectronics

DEPUTY DIRECTOR

Prof. Dr. -Ing. Nik Abdullah Nik Mohamed
Research Interest: Continuum Mechanics Material Modeling, Smart Material Research and Reliability Engineering

PRINCIPAL RESEARCH FELLOW

Dato’ Dr. Sheikh Muszaphar Shukor Al-Masrie
First Malaysia Astronaut

Prof. Dr. Mohammad Tariqul Islam
Research Interest: Wireless Communications, Antenna Technology, Microwave Communication Engineering

Assoc. Prof. Dr. Wayan Suparta
Research Interest: GPS Meteorology, Space and Climate Change, Geophysics, Computational Intelligence

SENIOR RESEARCH FELLOW/ PROGRAM COORDINATOR

Prof. Dr. Mohammad Tariqul Islam
Research Interest: Wireless Communications, Antenna Technology, Microwave Communication Engineering

Senior Research Fellow

Prof. Dr. Mohammad Rashed Iqbal Faruque
Research Interest: Electromagnetic Compatibility, Metamaterial, Electromagnetic Radiation, Optical Model, Thin Film

Associate Principal Research Fellow

Dr. Sabirin Abdullah
Research Interest: Ionospheric, GPS

Dr. Elwaleed Awad Khidir
Research Interest: Applications of Smart Materials, Automation, Acoustics Radiation & Health

Dr. Kalaivani Chellappan
Research Interest: Biomedical Engineering, Medical Informatics, Artificial Intelligence, Case-Based Reasoning, Electromagnetic Radiation & Health

Dr. Rosmina Jaafar
Research Interest: Biomedical Engineering, Biomedical Signal Processing, Biomedical Electronic and Instrumentation

RESEARCH FELLOWS

Dr. Gan Kok Beng
Research Interest: Biomedical Signal Processing, Instrumentation and System Design

Dr. Elwaleed Awad Khidir
Research Interest: Applications of Smart Materials, Automation, Acoustics Radiation & Health

Dr. Sabirin Abdullah
Research Interest: Ionospheric, GPS

Dr. Rosmina Jaafar
Research Interest: Biomedical Engineering, Biomedical Signal Processing, Biomedical Electronic and Instrumentation

Dr. Kalaivani Chellappan
Research Interest: Biomedical Engineering, Medical Informatics, Artificial Intelligence, Case-Based Reasoning, Electromagnetic Radiation & Health

Dr. Elwaleed Awad Khidir
Research Interest: Applications of Smart Materials, Automation, Acoustics Radiation & Health

Dr. Sabirin Abdullah
Research Interest: Ionospheric, GPS

Dr. Mohammad Rashed Iqbal Faruque
Research Interest: Electromagnetic Compatibility, Metamaterial, Electromagnetic Radiation, Optical Model, Thin Film

Dr. Rosmina Jaafar
Research Interest: Biomedical Engineering, Biomedical Signal Processing, Biomedical Electronic and Instrumentation
4. GRADUATE STUDIES COMMITTEE

Deputy Director
Professor Dr. -Ing. Nik Abdullah Nik Mohamed

Research Fellows

Professor Dr. Mohammad Tariqul Islam
Professor Dr. T Prakash G. Thamburaja
Associate Professor Dr. Wayan Suparta
Dr. Kalaivani Chellappan

Associate Fellows

Professor Dr. Ahmad Kamal Ariffin Mohd Ihsan
Professor Dr. Norbahiah Misran
Professor Ir. Dr. Mardina Abdullah
Associate Professor Dr. Badariah Bais

Assistant Registrar
Noor Hayati Ahmad Rasol

Research Officer
Siti Aminah Bahari
5. VISION AND MISSION OF ANGKASA

<table>
<thead>
<tr>
<th>Vision</th>
</tr>
</thead>
<tbody>
<tr>
<td>To be a leader in space science and technology research by joining international space research activities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Missions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To develop capacity for space research and industry</td>
</tr>
<tr>
<td>2. To develop space science and technology for peaceful applications</td>
</tr>
<tr>
<td>3. To promote the importance of space science for national development</td>
</tr>
<tr>
<td>4. To support the national space programs</td>
</tr>
</tbody>
</table>

6. ANGKASA’S OBJECTIVES

- To conduct multi-disciplinary research with national and international collaboration,
- To develop key resources and infrastructure for research, services and training,
- To develop human resources in the areas of space and aerospace-related fields through graduate program, professional training, research program and outreach activities,
- To develop space technology and aerospace capabilities through research and development activities in the field of space science and engineering,
- To develop methods and approaches to the use of space data in the application of space science and technology,
- To carry out activities to promote awareness of the importance of space and aerospace industries in order to develop the nation,
- Take the role of supporting the country’s space and aerospace program.

7. ANGKASA’S STRATEGIES

- To bid and secure national and international research grants,
- To establish active research linkages at the national and international level,
- To enhance the graduate program through continuous professional, development activities,
- To maximize research output via publications, patents and products,
- To provide opportunities for staff to undergo training for career advancement,
- To continuously develop well-equipped research infrastructure,
- To actively seek and maintain smart partnership with industry,
- To fulfill the role as a higher institution Centre of Excellence (HICoE),
- To develop courses and provide services to generate income.
8. EDUCATIONAL GOALS

To produce graduates with expertise in both the practical and theoretical aspects of the specialized areas in space study with the relevant skills for independent research, and to help them ready to industry and government, and its national building.

9. RESEARCH AREAS

- **Space Science**
  - Astronomy, Astrophysics, Astrobiology, Space Chemistry, Meteorology, Planetary Geology

- **Space Technology**
  - Designing and installing systems for communication, control and navigation for rockets and shuttles

- **Space Technology Applications**
  - Covering the fields of meteorology, environment management, natural disaster management and land usage

- **Space Governance**
  - Law of space and international relations with regards to space exploration and usage

10. ACTIVITIES

There are activities that had conducted in ANGKASA.
11. FACILITIES

Infrastructure
Among infrastructure provided in ANGKASA are:

<table>
<thead>
<tr>
<th>LABORATORY</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satellite &amp; Communication Lab</td>
<td>Faculty of Engineering &amp; Built Environment</td>
</tr>
<tr>
<td>Ultra Violet (UV) Lab</td>
<td>Faculty of Science &amp; Technology</td>
</tr>
<tr>
<td>Muon Lab</td>
<td>Faculty of Science &amp; Technology</td>
</tr>
<tr>
<td>Astrophysics Lab</td>
<td>Faculty of Science &amp; Technology</td>
</tr>
<tr>
<td>Microwave Lab</td>
<td>Faculty of Engineering &amp; Built Environment</td>
</tr>
</tbody>
</table>

Instrumentation
Among Instruments provided in ANGKASA are:

<table>
<thead>
<tr>
<th>Research Student’s Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microwave, RF, R&amp;D Facilities</td>
</tr>
<tr>
<td>RF/CAD Workstations</td>
</tr>
<tr>
<td>RF/CAD Software</td>
</tr>
<tr>
<td>CST Software</td>
</tr>
<tr>
<td>IE3D Software</td>
</tr>
<tr>
<td>Microstripes Software</td>
</tr>
<tr>
<td>Anechoic Chamber</td>
</tr>
<tr>
<td>Software - Matlab</td>
</tr>
<tr>
<td>Ku-band Beacon Receiver (own developed), UKM</td>
</tr>
<tr>
<td>Trimble TS5700 GPS Receiver – Academy of Science Malaysia (ASM)</td>
</tr>
<tr>
<td>Trimble TS5700 GPS Receiver – Academy of Science Malaysia (ASM)</td>
</tr>
<tr>
<td>MET3A Meteorological System – UKM</td>
</tr>
<tr>
<td>Magnetic Data Acquisition System (MAGDAS)</td>
</tr>
<tr>
<td>GPS Leica GRX 1200 Pro and MET4A Meteorological Systems</td>
</tr>
<tr>
<td>GPS Trimble NetR8 and MET4A Meteorological Systems</td>
</tr>
<tr>
<td>Muon Detector System</td>
</tr>
<tr>
<td>UV Detector</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microwave Lab</td>
</tr>
<tr>
<td>Satellite &amp; Communication Lab</td>
</tr>
<tr>
<td>Satellite &amp; Communication Lab</td>
</tr>
<tr>
<td>Scott Base, Antarctica</td>
</tr>
<tr>
<td>Satellite &amp; Communication Lab</td>
</tr>
<tr>
<td>Satellite &amp; Communication Lab</td>
</tr>
<tr>
<td>Satellite &amp; Communication Lab</td>
</tr>
<tr>
<td>National Observatory, Langkawi</td>
</tr>
<tr>
<td>Husafell, Iceland</td>
</tr>
<tr>
<td>School of Science and Technology, Universiti Malaysia Sabah, Kota Kinabalu, Sabah</td>
</tr>
<tr>
<td>Muon Lab</td>
</tr>
<tr>
<td>Ultra Violet Lab</td>
</tr>
</tbody>
</table>
Among facilities provided in ANGKASA are:

- Anechoic Chamber
- Internet
- 12" Telescope
- VLF
- GISTM
- MAGDAS
- Post Graduate Room
- GPS Station
12. **COLLABORATIVE RESEARCH**

ANGKASA has established collaboration with several organizations / institutions within and outside the country as follows:

<table>
<thead>
<tr>
<th>ORGANIZATION</th>
<th>FORMS OF COLLABORATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space Environment Research Center (SERC), Kyushu University, Japan</td>
<td>Memorandum of Understanding</td>
</tr>
<tr>
<td>Universiti Tun Hussein Onn, Malaysia (UTHM)</td>
<td>Memorandum of Understanding</td>
</tr>
<tr>
<td>Science Institute, University of Iceland</td>
<td>Cooperation Agreement for Lower and Upper Atmospheric Observation Project in Iceland</td>
</tr>
<tr>
<td>Research Organization of Information and Systems National Institute of Polar Research, Japan</td>
<td>Cooperation Agreement for Lower and Upper Atmospheric Observation Project in Iceland</td>
</tr>
<tr>
<td>Institute of Electrical and Electronics Engineers (IEEE) Malaysia Section (MOU)</td>
<td>Agreements relating to the joint organization of International Conference on Space Science and Communication (IconSpace)</td>
</tr>
<tr>
<td>Telekom Malaysia Berhad</td>
<td>Letter of Intent</td>
</tr>
<tr>
<td>Yamada Laboratory, Dept. of Electrical and Electronic Engineering, National Defense Academy, Japan</td>
<td>Letter of Intention for Cooperation in the area of Microwave Antenna Application and Anechoic Chamber Development</td>
</tr>
<tr>
<td>Universiti Malaysia Sarawak (UNIMAS)</td>
<td>Memorandum of Agreement in the area of space meteorology</td>
</tr>
<tr>
<td>Universiti Malaysia Sabah (UMS)</td>
<td>Memorandum of Agreement in the area of earth’s atmosphere</td>
</tr>
<tr>
<td>Radiusys Tech Sdn Bhd (Industri)</td>
<td>Non-disclosure and confidentially agreement</td>
</tr>
<tr>
<td>National Space Agency of Malaysia, MOSTI</td>
<td>Letter of intent relating to the sharing of data, expertise and development of observation stations data of GPS Ionospheric Scintillation system and TEC Monitor (GISTM) at the National Observatory, Langkawi, Malaysia</td>
</tr>
<tr>
<td>The Royal Jordanian Geographic Center</td>
<td>Letter of Intent (LOI)</td>
</tr>
<tr>
<td>Space, Telecommunications and Radioscience (STAR) Laboratory, Stanford University</td>
<td>Memorandum of Understanding</td>
</tr>
<tr>
<td>National Instruments (NI)</td>
<td>Memorandum of Understanding</td>
</tr>
<tr>
<td>Institute of Geophysics And Astronomy, Cuba</td>
<td>Corporation Agreement</td>
</tr>
</tbody>
</table>
13. GRADUATES PROGRAMME

ANGKASA at the National University of Malaysia (UKM) offers Doctor of Philosophy (PhD) and Master (MSc) programmes by thesis in the following areas:

a. Space Science
b. Astronautics
c. Space Management and Policy

14. GRADUATE STUDIES

The programme in space study in ANGKASA, UKM is a two (2) years for master and four (4) years for PhD. These programs aim the students who are interested in doing space study based research in the field of Space Science, Astronautic and Space Policy. ANGKASA recruits students from throughout the world and conducts all aspects of the program in English and Bahasa Malaysia.

15. PROGRAMME STRUCTURE

The Master and PhD program in space study was developed, and is guided by research fellows and professors at ANGKASA, UKM. The programs begin with a one (1) week orientation course in which students have a chance to become familiar with basic research practices that they may not previously encountered. One-week programs are composed of writing a Master or PhD thesis, publication ethics and UKM regulations.

The research-based program is on a part-time and full-time basis. All the research/technology developed at ANGKASA and data collected are belonged to UKM. Therefore, all students were needed to sign the confidential disclosure and limited use agreement with the objective to protect the university-owned confidential information and intellectual property.

16. ENTRY REQUIREMENTS

**Academic Qualification**

- **Master of Science (MSc)**
  - An Honour's degree or its equivalent in relevant areas which are recognised by the Senate with a Cumulative Grade Point Average (CGPA) of 3.00 and above; or
  - CGPA of at least 2.75 with one year working experience in a related field; or
  - Other equivalent qualifications recognised by the UKM Senate.
- **Doctor of Philosophy (PhD)**
  - A Masters degree in relevant areas which are recognized by the Senate; or
  - Master’s programme at the Universiti Kebangsaan Malaysia and being recommended by the Graduate Studies Committee and the relevant faculty for conversion to the Doctor of Philosophy (PhD) programme with the approval of Senate.

### English Proficiency

Foreign students are required to obtain a minimum score of **550 for the TOEFL or a Band 5.0 for the IELTS**, as a prerequisite for entry into graduate programmes at UKM.

If not meet both requirements, the students are required to take and pass the **English Placement Test (EPT)** conducted by PPS, UKM. Those who do not pass the EPT must take and pass the **English Module** in UKM for one semester.

17. **REQUIREMENTS FOR GRADUATE PROGRAMMES AT ANGKASA**

Student must have been awarded terms in order to be eligible to sit the final viva examinations. The requirements for the award of term are

**All Master and PhD Students**

- Satisfactory attendance and performance requirement
- Attendance at all prescribed research activities, research methodology course, workshop and other
- Satisfactory completion of Master and PhD thesis within the designated time frame
**General**

Unless stipulated otherwise, the following general rules apply:

- Students must observe strict confidentiality in all aspects relating to research activities, research methodology course and workshop.

- Students can only be excused from daily research activities, research methodology course and workshop must obtain the prior permission from their supervisor/ person in-charged.

- Students unavoidably absent from research activities and workshop should explain their absence in writing to the supervisor/person in-charged as soon as possible thereafter, or in the case of illness, produce a medical certificate.

- Students whose performance in assessments during the course is unsatisfactory may be required to attend for an interview before a decision on the award of Master/PhD is made.

- Students are expected to display a standard of behavior appropriate to a professional course.

**Journal Publications as a Condition for Viva**

All Masters and PhD candidates are required to publish at least 1 and 2 papers, respectively in an indexed journal (SCOPUS and/or ISI Thomson) recognized by UKM, before going to viva. Failure to publish would result in failure to graduate.

**Research Intensive Course**

All Masters and PhD candidates are also required to pass a Research Methodology Course (Z1RA 6014) which is registered by Centre for Graduate Management (PPS) while registered at ANGKASA.

Foreign candidates are required to attend a Bahasa Melayu (BM) course (two semesters) that is registered by Centre for General Studies (PPU) under Centre for Graduate Management (PPS) and must PASS the BM I examination before proceed to the next level which is BM II.

All courses of the Centre for Graduate Management (PPS) will be included in the degree transcript.
18. INTELLECTUAL PROPERTY

All Master and PhD candidates are required to understand, agreed and sign the CONFIDENTIAL DISCLOSURE AND LIMITED USE AGREEMENT between ANGKASA and post-graduate researchers with the objective to protect University-Owned Confidential Information and Intellectual Property rights. The content of Intellectual Property (Appendix A) can be found at the Centre for Collaborative Innovation (PIK), UKM (www.ukm.my/pik).

19. AWARD OF MASTER AND PhD

Award of Master and PhD to successful candidates is based on:

- Conditions set by the University Center for Graduate Management (refer to UKM Regulation as in Appendix 1)
- Conditions of the Graduate Studies set by ANGKASA
- Approval of the Master and PhD is by the Graduate Examination Body, with consent from the University Senate

20. DURATION OF STUDY

<table>
<thead>
<tr>
<th>Programme</th>
<th>Status</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Science</td>
<td>Full Time</td>
<td>2-6 Semesters</td>
</tr>
<tr>
<td></td>
<td>Part Time</td>
<td>4-10 Semesters</td>
</tr>
<tr>
<td>Doctor of Philosophy</td>
<td>Full Time</td>
<td>6-12 Semesters</td>
</tr>
<tr>
<td></td>
<td>Part Time</td>
<td>8-14 Semesters</td>
</tr>
</tbody>
</table>

21. INTAKE

All Masters and PhD candidates by research can register at anytime throughout the year.
## 22. FEES

### Local Students (Masters Degree)

<table>
<thead>
<tr>
<th>Programme Fees in Ringgit Malaysia (RM)*)</th>
<th>Masters Degree</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full Time (FT)</strong></td>
<td><strong>Part Time (PT)</strong></td>
<td></td>
</tr>
<tr>
<td>Registration &amp; Convocation Fee</td>
<td>1st Semester</td>
<td>Subsequent Semester</td>
</tr>
<tr>
<td>385</td>
<td>1,635</td>
<td>1,635</td>
</tr>
</tbody>
</table>

### International Students (Masters Degree)

<table>
<thead>
<tr>
<th>Programme Fees in Ringgit Malaysia (RM)*)</th>
<th>Masters Degree</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full Time (FT)</strong></td>
<td><strong>Part Time (PT)</strong></td>
<td></td>
</tr>
<tr>
<td>Registration &amp; Convocation Fee</td>
<td>1st Semester</td>
<td>Subsequent Semester</td>
</tr>
<tr>
<td>3,485</td>
<td>3,600</td>
<td>3,600</td>
</tr>
</tbody>
</table>

### Local Students (Doctor of Philosophy)

<table>
<thead>
<tr>
<th>Programme Fees in Ringgit Malaysia (RM)*)</th>
<th>Masters Degree</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full Time (FT)</strong></td>
<td><strong>Part Time (PT)</strong></td>
<td></td>
</tr>
<tr>
<td>Registration &amp; Convocation Fee</td>
<td>1st Semester</td>
<td>Subsequent Semester</td>
</tr>
<tr>
<td>385</td>
<td>2,435</td>
<td>2,435</td>
</tr>
</tbody>
</table>

### International Students (Doctors of Philosophy)

<table>
<thead>
<tr>
<th>Programme Fees in Ringgit Malaysia (RM)*)</th>
<th>Masters Degree</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full Time (FT)</strong></td>
<td><strong>Part Time (PT)</strong></td>
<td></td>
</tr>
<tr>
<td>Registration &amp; Convocation Fee</td>
<td>1st Semester</td>
<td>Subsequent Semester</td>
</tr>
<tr>
<td>3,485</td>
<td>5,400</td>
<td>5,400</td>
</tr>
</tbody>
</table>

* Subject to change, refer to PPS (http://www.ukm.my/pps)
23. STUDENTS’ ACTIVITIES

Students are required to attend teaching/learning sessions while include:

- **ANGKASA Graduate Research Seminar (SPSA)**
  Objective of this seminar is to give the opportunity to Master and PhD students of ANGKASA to present their current progress of research, which is underway by them. The students need to present their research findings and progress in a power point presentation format in the ANGKASA Graduate Research Seminar (SPSA, Seminar Penyelidikan Siswa Zah Angkasa). The SPSA is held once a year.

- **Series of Seminars ANGKASA and Other Related Seminars & Workshops**
  The goal of the series Seminars ANGKASA is to give opportunity for research fellow, students and research officer to share research finding or something about their research. The seminar content can be theories, research findings, progress report, or networking activity. The Public Lecture is usually conducted by a visiting lecture/professor in their expert area. This activity is opened to all the UKM students, research assistants, laboratory assistants, science officers, research officers, fellow researchers, professors. Both activities are to discuss and comments on their research findings, progress, sharing experience and knowledge, research collaboration and networking.

- **Orientation Weeks**
  All Master and PhD candidates are required to complete the scheduled orientation weeks organized by ANGKASA during the 1st semester of registration. The orientation week aims to introduce graduate students to basic laboratory techniques, rules and regulations. Graduate students also will be explained on how to keep research log book and ethics in research.
24. EVALUATION ON STUDENTS

- The students research progresses are constantly evaluated by the research supervisors and co-supervisors. The progress reports are required to present in the power point format in the series seminar or SPSA as mentioned above.

- Students are required to record all their daily research activities in the log book and this log book will be constantly evaluated by their supervisor.

- Students need to present their research findings in the related conferences in oral or poster presentation at least once in their life time study as part of the progress report evaluation. A biennial event of International Conference on Space Science and Communication (IconSpace) organized by ANGKASA and another collaborator can be used as one media to sharing the research finding.

25. GUIDELINES FOR STAFF AND STUDENT BEHAVIOUR

Guidelines for Staff Behaviour

- Recognise teaching and supervision of students as part of their professional obligation.
- Recognise the student’s right to be part of the professional team.
- Be sensitive to the student’s requirement, recognizing the student’s level of knowledge and experience.
- Give constructive feedback in a manner, which will improve the student’s performance.
- Criticism is not acceptable if it is demeaning, belittling, discourteous, is of a personal nature or is not given in a way which will enable the student to improve his/her performance.
- Discuss with the Graduate Studies Committee Meeting any serious concerns about a student’s performance and professional capability.
- Notify and explain any inability to take a scheduled teaching or meeting session.
- Recognise that any form of persecution is intolerable in ANGKASA.
Guidelines for Students Behaviour

- Be punctual at scheduled daily research activities and seminars. The student should notify the supervisor or staff member to explain any inability to attend a scheduled session.
- Display standards of behavior and presentation that demonstrate respect for the customer when communicating or discuss a request, for example data requisite.
- Show courtesy in dealing with all staff and students.
- Recognise the other legitimate demands on teaching/research staff time.
- Ensure that students consult with a supervisor or a third party if there are severe problems arise such as personal conflicts or high expectations of the students beyond of her/his mentor.
- Ensure the publication ethical issue and research agreements (if any) between the supervisor and students are practiced.
- Show your personality in accordance with the university regulations.
26. HOW TO APPLY AND REGISTER

Prospective candidates can apply directly online at www.ukm.my/guest.

Please arrange the document required in duplicate. Enclose an application fee of RM20 (for Malaysian Applicants), USD30 or RM100 (for Foreign Applicants). Postal Order or Money Order or Banker’s Draft should be payable to ‘BENDAHARI UKM’ or bank into account No. 1218-0005004-05-8 (CIMB Bank Berhad) (please enclose the bank slip). Cash and personal cheques are not accepted.

The flowchart shows the step of the application until the registration process. For further information regarding the Graduate Studies at ANGKASA, please contact:

Institute of Space Science (ANGKASA)
Level 2, Faculty of Engineering and Built Environment Building
Universiti Kebangsaan Malaysia
43600 UKM Bangi
Selangor, MALAYSIA

Tel.: (603) 89216855/6853/6858
Fax: (603) 89216856
Email: angkasa@ukm.my
Website: www.ukm.my/angkasa
27. PROGRAMME COMPLETION

Upon approaching the completion of the study, student needs to undergo the following preparation process of graduation:

1. Send thesis submission notice form to ANGKASA with Abstract
2. ANGKASA issue the thesis submission notice to PPS
3. Submit the thesis on the fixed date (3 months from notice form)
4. VIVA Notification from PPS
5. VIVA
6. Correction of thesis
7. Submit the corrected thesis
8. Graduate
28. FREQUENTLY ASKED QUESTION

a. When ANGKASA was established?

Institute of Space Science (ANGKASA), UKM was founded on 1 August 2003. ANGKASA is established as a multidisciplinary research centre that offers the graduate level education and research in the fields of space science, space technology, space technology application and space governance.

b. Where is the location of ANGKASA?

ANGKASA is located at Level 2, Faculty of Engineering and Built Environment Building, Universiti Kebangsaan Malaysia. Facilities such as North-South Highway (PLUS), KTM commuter and bus are available. It should be noted that the National Space Agency of Malaysia also uses the term “ANGKASA”, which are both different institutions.
c. What research facilities available at ANGKASA?

Facilities available at ANGKASA are GPS station, GPS Ionospheric Scintillation & TEC Monitor (GISTM), Magnetic Data Acquisition System (MAGDAS), VLF AWESOME Monitor, Real-Time UKM Automatic Weather System, MEADE 12" LX200 ACF telescope and Muon Detector. The other GPS facilities were also installed in Antarctica, Iceland and Kota Kinabalu, Sabah. Information about research facilities is listed in the 'Facilities' menu at the ANGKASA website.

d. What are the courses offered at ANGKASA?

ANGKASA, UKM is now offering courses at Master and PhD level. Information about programs is listed in the 'Academic Programmes' menu at the ANGKASA website.

e. The main language used in UKM?

Malay and English

f. What does the postgraduate programme offer?

The postgraduate programmes at ANGKASA are by research, and therefore, students will be given a research project which will lead to the production of a thesis at the
end of the study. There will be a mandatory course on Research Methodology and Bahasa Melayu. The scope of responsibilities includes preparation of research proposal, collection of samples (if relevant), laboratory experiments consisted of data collection, data processing and analysis, dissemination of research result, thesis writing and viva. Students will also be given the opportunity to present their findings (oral or poster) at local and international conferences. It is also mandatory for students to publish their research work (at least 1 paper for MSc and 2 papers for PhD candidates) in an indexed journal before viva to make their more confident in defend the thesis. A letter of acceptance, including the corrections, by the journal editor will be adequate proof of publication.

g. Do you provide any financial assistance to students?

Currently, we offer 2 types of financial assistance to students.

i. The Research Grant (RA) Scheme
   ✔ Applicants are not necessarily a UKM student.
   ✔ Applications are open to all local candidates ONLY

ii. Graduate Research Assistantship (GRA) Scheme
   The offer for fully registered local and international students will be based upon approval of the candidate’s research project by the supervisor.
   **Remuneration:**
   Master’s Programmes: RM1,600.00/month
   Doctoral Programmes: RM1,800.00/month

h. How can I apply for admission at ANGKASA?

You can apply for a postgraduate student at ANGKASA by sending your resume (CV), research proposal (optional), thesis abstract (for those with MSc), academic transcripts and relevant certificates to Centre for Graduate Management (PPS), UKM, or you may visit [http://www.ukm.my/pps](http://www.ukm.my/pps) for more details (see Section 23). For any enquiries, please contact ANGKASA assistant registrar, Mrs. Noor Hayati Ahmad Rasol at 603-8921 6855/6858/6853.

i. Who can be contacted if I wish to deal with the ANGKASA?

Director, Institute of Space Science, Level 2, Faculty of Engineering and Built Environment Building, Universiti Kebangsaan Malaysia, 43600 UKM Bangi, Selangor Darul Ehsan.
Tel: 603-8921 6853/6855  Fax: 603-8921 6856
Website: [http://www.ukm.my/angkasa](http://www.ukm.my/angkasa), Email: angkasa@ukm.my
Glossary

ANGKASA   Institute of Space Science (Institut Sains Angkasa)
BM         Bahasa Melayu
Graduate   For this book means that for graduate and postgraduate, respectively
GRA        Graduate Research Assistant
IELTS      International English Language Testing System
PIK        Centre for Collaborative Innovation (Pusat Inovasi Kolaboratif)
PLUS       North-South Highway Project (Projek Lebuhraya Utara-Selatan)
PPS        Centre for Graduate Management (Pusat Pengurusan Siswaah)
PPU        Centre for General Studies (Pusat Pengajian Umum)
RA         Research Assistant
SPSA       Angkasa Graduate Research Seminar (Seminar Penyelidikan Siswazah Angkasa)
TOEFL      Test of English as a Foreign Language
UKM        Universiti Kebangsaan Malaysia

References

1. ANGKASA UKM website, http://www.ukm.my/angkasa
2. Center for Graduate Management website, http://www.ukm.my/pps