BUKU
PANDUAN SISWAZAH
POSTGRADUATE GUIDEBOOK

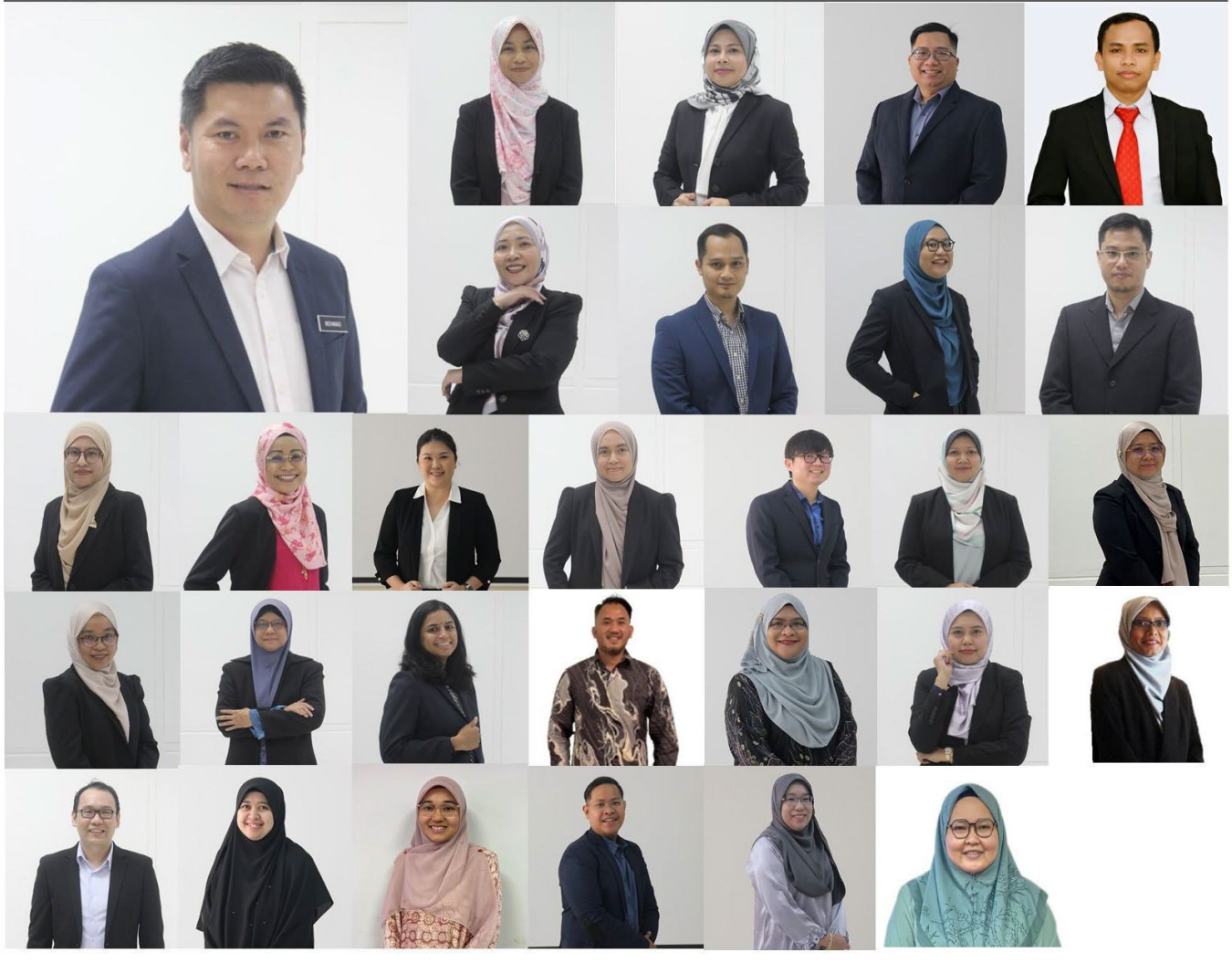
Fakulti Farmasi

Sesi Akademik 2025-2026

Faculty of Pharmacy

Academic Session 2025-2026

PENGURUSAN FAKULTI FARMASI, UNIVERSITI KEBANGSAAN MALAYSIA



PENGURUSAN FAKULTI FARMASI, UNIVERSITI KEBANGSAAN MALAYSIA

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PANDUAN SISWAZAH
Fakulti Farmasi
Sesi Akademik 2025-2026

Fakulti Farmasi
Universiti Kebangsaan Malaysia
Kampus Kuala Lumpur • 2025
http://www.ukm.my/farmasi

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Universiti Kebangsaan ini merupakan puncak dari usaha kita ke arah memenuhi tuntutan dan aspirasi rakyat yang ingin melihat bahawa bahasa ibunda mempunyai kedaulatan dan kedudukan yang sewajarnya di dalam usaha memenuhi keperibadian nasional

(Ucapan Tun Abdul Razak di Konvokesyen Pertama UKM, 1973)

UNIVERSITI KEBANGSAAN MALAYSIA
National University of Malaysia

LAMBANG

Universiti Kebangsaan Malaysia (UKM) ialah sebuah perisai yang berpetak empat. Setiap petak mengandungi gambar dan warna latar yang berlainan dengan membawa maksud tertentu. Gambar yang didapati dalam petak tersebut ialah seperti berikut:

- Seekor harimau berwarna kuning yang gagah sedang menyerang ke arah kanan berlatar warna merah.
- Simbol atom berlatar warna kuning.
- Simbol teknologi berlatar warna biru.
- Sekuntum bunga raya berwarna merah berlatar warna putih.

BUKU

Buku melambangkan ilmu pengetahuan, iaitu peranan utama UKM sebagai institusi pengajian tinggi dan penyelidikan.

PERISAI

Perisai bererti keteguhan. Keteguhan yang dimaksudkan ialah kemampuan UKM memainkan peranan sebagai institusi pengajian tinggi di negara ini.

HARIMAU

Harimau melambangkan keberanian dan kegagahan. Harimau mencerminkan masyarakat Malaysia yang berteraskan kebudayaan Melayu. Harimau garang menggambarkan kesediaan dan keupayaan UKM mara memerangi kejahilan, kejahatan dan kepalsuan.

ATOM DAN TEKNOLOGI

Simbol atom dan teknologi melambangkan konsep pembangunan negara yang berlandaskan sains dan teknologi moden. UKM sebagai institusi ilmu bertanggungjawab mengeluarkan tenaga mahir dalam semua bidang untuk memenuhi keperluan pembangunan negara.

BUNGA RAYA

Bunga raya adalah bunga kebangsaan Malaysia. Lima helai ranggi melambangkan lima prinsip Rukun Negara yang dihayati dan sentiasa dipelihara oleh rakyat Malaysia.

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Kata Alu-aluan

Assalamualaikum wbt. dan Salam Sejahtera,

Saya merakamkan setinggi-tinggi tahniah kepada saudara dan saudari yang telah terpilih melanjutkan pengajian ke peringkat pascasiswazah di Universiti Kebangsaan Malaysia (UKM). Saya juga mengucapkan ribuan terima kasih kepada saudara-saudari yang telah memilih UKM untuk menyambung pengajian peringkat tinggi.

Sebagai pelajar pascasiswazah, saya berharap saudara dan saudari dapat mengambil peluang dan inisiatif untuk memperkayakan ilmu pengetahuan dengan memberikan sumbangan terhadap hala tuju penyelidikan UKM. Keterlibatan saudara-saudari dalam bidang penyelidikan amat digalakkan melalui pengwujudan kemudahan penyelidikan dan pembelajaran yang terbaik serta skim galakan penyelidikan untuk pelajar pascasiswazah menghasilkan inovasi yang berkualiti dan bertaraf dunia. Kepakaran dan hasil penyelidikan yang dijalankan juga diharap dapat menyumbang secara signifikan kepada pembangunan negara dan kecemerlangan UKM selaras dengan hala tuju strategik UKM.

Saya yakin dengan pengalaman dan kemahiran yang ada, saudari dan saudari boleh menjadi rakan pembimbing kepada pelajar prasiswazah dan bersama-sama berganding bahu menjayakan hasrat UKM untuk melahirkan modal insan yang berkualiti. Saudara dan saudari juga digalakkan untuk menyertai secara aktif dalam pelbagai aktiviti keilmuan seperti persidangan, seminar dan penerbitan bagi memantapkan pengetahuan dan mematangkan pengalaman masing-masing.

Saya berharap saudara dan saudari terus meningkatkan usaha dan tekad untuk menjadi pelajar pascasiswazah yang berupaya memberi sumbangan besar terhadap kecemerlangan universiti, masyarakat dan negara.

Sekian.

Prof. Dr. Sufian Jusoh
Naib Canselor
Universiti Kebangsaan Malaysia

LAMPIRAN A
Kemaskini : 26 Feb. 2025

KALENDAR SESI AKADEMIK 2025/2026 - *ACADEMIC CALENDAR 2025/2026 SESSION*
UNIVERSITI KEBANGSAAN MALAYSIA

PRASISWAZAH (KAMPUS INDUK BANGI, FFAR, FSK) & SISWAZAH (KAMPUS INDUK BANGI, FFAR, FSK & FPER-kecuali Program Doktor Pakar)
UNDERGRADUATE (MAIN CAMPUS BANGI, FFAR, FSK) & POSTGRADUATE (MAIN CAMPUS BANGI, FFAR, FSK & FPER-except Master Clinical)

Fakulti/Institut/Pusat *Faculty/Institute/Centre*	Perkara/ *Items*	Semester 1		Semester 2		Semester 3	
		Tarikh/ *Dates*	Tempoh/ *Duration*	Tarikh/ *Dates*	Tempoh/ *Duration*	Tarikh/ *Dates*	Tempoh/ *Duration*
Fakulti/*Faculty*	Pendaftaran Diri Pelajar Baharu (Pascasiswazah)/ *Registration for New Students (Postgraduate)*	19 Sept. - 5 Okt. 2025 *19th Sept. - 5th Oct. 2025*	2 minggu *2 weeks*	23 Feb. - 8 Mac 2026 *23rd Feb. - 8th March 2026*	2 minggu *2 weeks*	-	-
Ekonomi dan Pengurusan/ *Economics & Management*	Lapor Diri Pelajar Baharu dan MAW (Prasiswazah)/ *Registration for New Students & MAW (Undergraduate)*	27 Sept. - 5 Okt. 2025 *27th Sept. - 5th Oct. 2025*	1 minggu *1 week*	-	-	-	-
Farmasi/ *Pharmacy*	Sesi Pembelajaran (Prasiswazah dan Pascasiswazah)/ *Lectures (Undergraduate and Postgraduate)*	6 Okt. - 16 Nov. 2025 *6th Oct. - 16th Nov. 2025*	6 minggu *6 weeks*	9 - 22 Mac 2026 *9th - 22nd March 2026*	2 minggu *2 weeks*	27 Julai - 13 Sept. 2026 *27th July - 13th Sept. 2026*	7 minggu *7 weeks*
Kejuruteraan dan Alam Bina/ *Engineering & Built Environment*	Cuti Perayaan	-	-	23 - 29 Mac 2026 *23rd - 29th March 2026*	1 minggu *1 week*		
Pendidikan/ *Education*	Sesi Pembelajaran (Prasiswazah dan Pascasiswazah)/ *Lectures (Undergraduate and Postgraduate)*	-	-	30 Mac - 3 Mei 2026 *30th March - 3rd May 2026*	5 minggu *5 weeks*		
Perubatan/ *Medicine*	Cuti Pertengahan Semester/ *Mid Semester Break*	17 - 23 Nov. 2025 *17th - 23rd Nov. 2025*	1 minggu *1 week*	4 - 10 Mei 2026 *4th - 10th May 2026*	1 minggu *1 week*	-	-
Pengajian Islam/ *Islamic Studies*	Majlis Konvokesyen UKM ke-53 *The 53rd UKM Convocation Ceremony*	22 - 28 Nov. 2025 *22nd - 28th Nov. 2025*	6 hari *6 days*	-	-	-	-
Sains dan Teknologi/ *Science & Technology*	Sesi Pembelajaran (Prasiswazah dan Pascasiswazah)/ *Lectures (Undergraduate and Postgraduate)*	24 Nov. 2025 - 18 Jan. 2026 *24th Nov. 2025 - 18th Jan. 2026*	8 minggu *8 weeks*	11 Mei - 28 Jun 2026 *11th May - 28th June 2026*	7 minggu *7 weeks*	-	-
Sains Kesihatan/ *Health Science*	Minggu Ulangkaji/ *Revision Week*	19 - 25 Jan. 2026 *19th - 25th Jan. 2026*	1 minggu *1 week*	29 Jun - 5 Julai 2026 *29th June - 5th July 2026*	1 minggu *1 week*	-	-
Sains Sosial dan Kemanusiaan/ *Social Sciences & Humanities*	Peperiksaan/ *Examinations*	26 Jan. - 15 Feb. 2026 *26th Jan - 15th Feb. 2026*	3 minggu *3 weeks*	6 - 26 Julai 2026 *6th - 26th July 2026*	3 minggu *3 weeks*	14 - 20 Sept. 2026 *14th - 20th Sept. 2026*	1 minggu *1 week*
Teknologi dan Sains Maklumat/ *Information Science & Technology*	Cuti Semester/ *Semester Break*	16 Feb. - 8 Mac 2026 *16th Feb. - 8th March 2026*	3 minggu *3 weeks*	27 Julai - 27 Sept. 2026 *20th July - 27th Sept. 2026*	9 minggu *9 weeks*	-	-
Undang-Undang/ *Law*							
Institut/*Institute*							
ATMA, IKMAS, IMEN, INBIOSIS, HADHARI, KITA, LESTARI, SERI, SELFUEL, UMBI, IPI, IIR4.0							
Pusat/*Centre*							
CITRA Universiti							

Cuti Umum Semester 1

Hari Deepavali - 20 Oktober 2025 (Isnin)
Hari Keputeraan Sultan Selangor - 11 Disember 2025 (Khamis)
Hari Krismas - 25 Disember 2025 (Khamis)
Tahun Baharu - 1 Januari 2026 (Khamis)
Hari Wilayah Persekutuan - 1 Februari 2026 (Ahad)
Hari Thaipusam - 1 Februari 2026 (Ahad)
Cuti Hari Thaipusam - 2 Februari 2026 (Isnin)
Hari Tahun Baru Cina - 17 & 18 Februari 2026 (Selasa & Rabu)
Nuzul Quran - 7 Mac 2026 (Sabtu)

Cuti Umum Semester 2 & Semester 3

Hari Raya Aidil Fitri - 21 - 22 Mac 2026 (Sabtu & Ahad)
Cuti Hari Raya Aidil Fitri - 23 Mac 2026 (Isnin)
Hari Pekerja - 1 Mei 2026 (Jumaat)
Hari Raya Aidil Adha - 27 Mei 2026 (Rabu)
Pesta Kaamatan - 30 & 31 Mei 2026 (Sabtu & Ahad)
Hari Wesak - 31 Mei 2026 (Ahad)
Hari Gawai - 1 & 2 Jun 2026 (Isnin & Selasa)
Hari Keputeraan YDP Agong - 1 Jun 2026 (Isnin)
Awal Muharam (Maal Hijrah) - 17 Jun 2026 (Rabu)
Maulidur Rasul - 25 Ogos 2026 (Selasa)
Hari Kebangsaan - 31 Ogos 2026 (Isnin)
Hari Malaysia - 16 September 2026 (Rabu)

Tertakluk kepada perubahan

Public Holidays Semester 1

Deepavali - 20th October 2025 (Monday)
Sultan of Selangor's Birthday - 11th December 2025 (Thursday)
Christmas Day - 25th December 2025 (Thursday)
New Year's Day - 1st January 2026 (Thursday)
Federal Territory Day - 1st February 2026 (Sunday)
Thaipusam Day - 1st February 2026 (Sunday)
Thaipusam Holiday - 2ndFebruary 2026 (Monday)
Chinese New Year - 17th & 18th February 2026 (Tuesday & Wednesday)
Nuzul Quran - 7th March 2026 (Saturday)

Public Holidays Semester 2 & Semester 3

Hari Raya Aidil Fitri - 21st - 22nd March 2026 (Saturday & Sunday)
Hari Raya Aidil Fitri Holiday - 23rd March 2026 (Monday)
Labour Day - 1st May 2026 (Friday)
Hari Raya Aidil Adha - 27th May 2026 (Wednesday)
Harvest Festival - 30th & 31st May 2026 (Saturday & Sunday)
Wesak Day - 31st May 2026 (Sunday)
Hari Gawai - 1st & 2nd June 2026 (Monday & Tuesday)
Birthday of Yang di-Pertuan Agong - 1st June 2026 (Monday)
Awal Muharram - 17th June 2026 (Wednesday)
Maulidur Rasul - 25th August 2026 (Tuesday)
National Day - 31st August 2026 (Monday)
Malaysia Day - 16th September 2026 (Wednesday)

Subject to changes

Nota

*Sempena perayaan Hari Deepavali yang dijangka jatuh pada 20 Oktober 2025 (Isnin) ketika minggu ke-3 semester 1, sesi pengkuliahan akan dijalankan secara hibrid bagi pelajar-pelajar beragama Hindu, tertakluk kepada kesesuaian program pengajian pelajar dan pertimbangan pihak fakulti.

**Sempena perayaan Hari Raya Aidilfitri yang dijangka jatuh pada 21-22 Mac 2026 semester 2, sesi pengkuliahan bagi minggu 1 dan minggu ke-2 akan dijalankan secara hibrid/atas talian, tertakluk kepada kesesuaian program pengajian pelajar dan pertimbangan pihak fakulti.

***Sesi pengkuliahan akan dijalankan secara hibrid/atas talian pada minggu ke-12 dan ke-13 semester 2, tertakluk kepada kesesuaian program pengajian pelajar dan pertimbangan pihak fakulti sempena perayaan/cuti umum berikut: Hari Raya Aidiladha, Pesta Kaamatan, Hari Wesak, Hari Gawai dan Hari Keputeraan KDYMM Yang di-Pertuan Agong.

PIHAK BERKUASA DAN PEGAWAI PENGURUSAN UNIVERSITI KEBANGSAAN MALAYSIA TAHUN 2025

CANSELOR

Duli Yang Maha Mulia Yang di-Pertuan Besar Negeri Sembilan Darul Khusus
Tuanku Muhriz Ibni Almarhum Tuanku Munawir
D.K., D.M.N., D.K. (Perak)., D.K. (Perlis)., D.K. (Selangor)., D.K. (Kedah)., D.K. (Kelantan)., D.K. (Johor)., D.K. (Terengganu)., D.K.Y.R., P.P.T., LLB (Aberystwyth)., Hon. LLD (South Wales)., Hon. Fellow (Aberystwyth)., FRCSEd (Hon), Hon. Fellow (AFP)

PRO-CANSELOR

YAM Tunku Besar Seri Menanti Tunku Ali Redhauddin Ibni Tuanku Muhriz
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YBhg. Tan Sri Datuk Rafiah Binti Salim
P.S.M., P.J.N., Hon. PhD (Queen's University Belfast)., Hon. Ph.D (UMalaya)., LL.B, LL.M (Queen's University Belfast)

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Pengerusi
YBhg. Prof. Emeritus Dato' Dr. Mohamad Abd. Razak

Ahli-ahli LPU

Naib Canselor
YBhg. Prof. Dr. Sufian Jusoh

Wakil Kementerian Pengajian Tinggi
YBhg. Datuk Prof. Dr. Azlinda Azman

Wakil Kementerian Kewangan
Puan Habshah Ali

Wakil Masyarakat Setempat
YBhg. Dato' Dr. Mohd Zaidi Md Zain @ Zakaria

Wakil Senat
YBhg. Prof. Dr. Bariah Mohd Ali

Wakil Sektor Swasta
YBhg. Datuk Johan Idris

Wakil Sektor Swasta
YBhg. Tan Sri Dr. Sharifah Zarah Syed Ahmad

Wakil Sektor Swasta
YBhg. Dato' Hisham Nordin

Wakil Alumni UKM
YBhg. Dato' Yeow Wah Chin

Wakil Berpengetahuan dan Berpengalaman
YBhg. Prof. Dr. Mohamad Tajuddin Haji Mohamad Rasdi

AHLI EX-OFFICIO

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YBhg. Prof. Dr. Abdul Halim Abdul Gafor

Timbalan Naib Canselor Hal Ehwal Penyelidikan dan Inovasi
YBhg. Prof. Dr. Jamia Azdina Jamal
Menjalankan Fungsi

Timbalan Naib Canselor Hal-Ehwal Pelajar dan Alumni
YBhg. Prof. Ts. Dr. Norinsan Kamil Othman
Menjalankan Fungsi

Timbalan Naib Canselor Hal Ehwal Jaringan Industri dan Masyarakat
YBhg. Prof. Ts. Dr. Faizal Mohammad
Menjalankan Fungsi

Bendahari
Encik Mohd Azli bin Mohd Kasirun

Ketua Pustakawan
Encik Hazmir Hj. Zainal

Penasihat Undang-Undang
Puan Hazlina Mohd Khalid

Setiausaha
Pendaftar

PEGAWAI PENGURUSAN UTAMA

Naib Canselor
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LL.B (Wales)., LL.M (Lond.)., Doctor Iuris (Institute of Economic and European Law, University of Bern)

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Menjalankan Fungsi

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Menjalankan Fungsi

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Menjalankan Fungsi

Pendaftar
Tuan Haji Zanudin bin Mohd Daud
DPT, ANS, PJK, SmSn (Kep) (UKMalaysia)

Bendahari
Encik Mohd Azli Mohd Kasirun C.A (M)
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Ketua Pustakawan
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Penasihat Undang-Undang
Puan Hazlina Mohd Khalid
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Prasarana UKM
Encik Zolkefli Mohamed
BEng (Hons) Civil (UiTM)., Postgrad. Dip. in Sc. (ITM)

DEKAN / PENGARAH
FAKULTI / INSTITUT / PUSAT

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Falsafah, Wawasan, Misi dan Matlamat UKM

Falsafah

Paduan antara iman kepada Allah dengan ilmu yang bermanfaat serta gabungan antara teori dengan amal adalah dasar utama bagi perkembangan ilmu, proses pembinaan masyarakat terpelajar dan pembangunan Universiti.

Wawasan

UKM bertekad menjadi Universiti terkehadapan yang mendahului langkah masyarakat dan zamannya bagi membentuk masyarakat dinamis, berilmu dan berakhlak mulia.

Misi

Menjadi Universiti terpilih yang memartabatkan bahasa Melayu serta mensejagatkan ilmu beracuan budaya kebangsaan.

Matlamat

Untuk menjadi pusat keilmuan yang terkehadapan, berteknologi dan berdaya saing yang memartabatkan bahasa Melayu sebagai pusat bahasa ilmu, membangun masyarakat dinamis dan berakhlak mulia, mengantarabangsakan citra dan sumbangan UKM bagi masyarakat sejagat, menjana teknologi yang bermanfaat kepada masyarakat.

IMBASAN SEJARAH UNIVERSITI KEBANGSAAN MALAYSIA

Cetusan pertama gagasan perlunya pendidikan tinggi untuk orang Melayu muncul dalam Mesyuarat Majlis Raja- raja pada tahun 1903. Za'ba, seorang cendekiawan, menulis berkenaan gagasan tersebut dalam akhbar Lembaga Melayu pada tahun 1917. Gerakan pemikiran, perdebatan serta tekad golongan cendekiawan Melayu untuk menubuhkan sebuah universiti dan menggunakan Bahasa Melayu sebagai bahasa pengantar di institusi pengajian tinggi bermula pada tahun 1923 apabila Abdul Kadir Adabi, seorang lagi cendekiawan Melayu mengemukakan memorandum gagasan tersebut kepada DYMM Sultan Kelantan. Namun demikian, pemikiran dan tekad tersebut tidak dapat berkembang dan terlaksana kerana wujudnya pelbagai halangan dan rintangan oleh tekanan kolonialisme.

Mulai tahun 1957 hingga 1967, perjuangan untuk penubuhan universiti kebangsaan menjadi semakin bersemarak sebagai memenuhi tuntutan dan semangat kemerdekaan bangsa dan negara. Sehubungan itu, pada 1968 cendekiawan Melayu telah membentuk sebuah jawatankuasa penaja yang berperanan merancang penubuhan sebuah universiti kebangsaan. Pelbagai forum budaya dan politik diadakan bagi mendapat sokongan kerajaan dan rakyat untuk mewujudkan sebuah institusi pengajian tinggi yang memartabatkan Bahasa Melayu sebagai bahasa pengantar dalam semua bidang pangajian dan keilmuan. Perjuangan yang tidak pernah luput itu mencapai kejayaan dengan penubuhan Universiti Kebangsaan Malaysia (UKM) pada 18 Mei 1970 yang memulakan operasi pertamanya di Lembah Pantai Kuala Lumpur. Kumpulan pertama pelajar prasiswazah seramai 192 orang dan dua (2) orang pascasiswazah mula mendaftar di tiga (3) buah fakulti iaitu Fakulti Sains, Fakulti Sastera dan Fakulti Pengajian Islam.

Pada tahun 1974, UKM menubuhkan UKM Kampus Sabah di Kebun Kawang, Papar. Nama Kebun Kawang kemudiannya ditukar kepada Limauan oleh Tun Datu Mustapha Datu Harun yang ketika itu sebagai Ketua Menteri Sabah. Kampus yang menempatkan Fakulti Sains dan Sumber Alam ini berpindah ke Bukit Padang, Kota Kinabalu pada tahun 1980. Seterusnya berpindah ke Menggatal, Tuaran pada tahun 1990 bersama Fakulti Sains Pembangunan yang asalnya ditempatkan di Kampus Induk Bangi. Dengan penubuhan Universiti Malaysia Sabah pada tahun 1994, UKM Kampus Sabah ditutup secara rasminya pada tahun 1996 dan kedua-dua fakulti berkenaan dipindahkan ke Kampus Induk Bangi, Selangor.

Sejak 53 tahun penubuhannya, UKM telah menghasilkan 229,452 graduan. Universiti ini terus berkembang pesat sebagai sebuah universiti awam terkehadapan yang kini mempunyai 14 fakulti dan 13 institut penyelidikan. UKM juga mempunyai entiti yang beroperasi secara komersil, iaitu UKM Holdings Sdn. Bhd. sebagai satu pendekatan dalam mengkomersilkan dan memasyarakatkan kepakaran yang dimiliki di samping menjana kewangan Universiti.

Kampus induk UKM di Bangi yang memulakan operasinya pada tahun 1977 mempunyai keluasan 1,096.29 hektar. Kampus Induk Bangi menempatkan sepuluh (10) fakulti, dan duabelas (12) institut penyelidikan. Manakala Kampus Kuala Lumpur UKM yang terletak di Jalan Raja Muda Abdul Aziz, Kuala Lumpur menempatkan Fakulti Sains Kesihatan, Fakulti Pergigian dan Fakulti Farmasi dengan keluasan 20 hektar. Kampus Kuala Lumpur UKM yang terletak di Cheras dengan keluasan 22.3 hektar menempatkan Fakulti Perubatan, Hospital Canselor Tuanku Muhriz (HCTM), Hospital Tunku Ampuan Besar Tuanku Aishah Rohani, Hospital Pakar Kanak-Kanak UKM (HPKK) dan Institut Biologi Molekul Perubatan (UMBI).

Berasaskan kecemerlangan dalam bidang penyelidikan lebih empat dekad, UKM dipilih sebagai salah sebuah universiti penyelidikan di Malaysia pada tahun 2006. UKM juga adalah penerima Anugerah Kualiti Perdana Menteri 2006, memperoleh status SwaAkreditasi pada 2010 dan diberikan status Universiti Autonomi pada Januari 2012. Penganugerahan ini adalah pengiktirafan bagi kecemerlangan UKM dalam bidang akademik dan tadbir urus.

Sebagai panduan kepada seluruh warga universiti untuk meningkatkan universiti watan ini, lima nilai utama telah dijadikan sebagai lembayung dan kerangka bagi UKM dan ia dikenali sebagai TERAS. TERAS ini terdiri daripada Bakat (Talent), Etika (Ethics), Memperkasa (Revitalise), Tangkas (Agile) dan Jiwa (Soul). Ia bertujuan untuk membolehkan warga UKM membuat rujukan dan panduan terhadap hala tuju universiti dalam usaha meningkatkan pencapaian ke tahap yang tertinggi.

Bagi menyokong nilai TERAS, UKM telah membangunkan 5 Bitara TERAS, iaitu Watan, i-Minda, Holistik, Digital dan Prihatin. Lembayung TERAS dan Bitara inilah yang sewajarnya menjadi nadi dan nafas untuk universiti bergerak ke hadapan dan melangkah jauh. Ia juga perlu difahami dan dihayati serta diterapkan dalam aspek pengembangan akademik, kecemerlangan penyelidikan, pembangunan pelajar dan pemerkasaan jaringan antarabangsa serta khidmat komuniti.

Bagi memastikan roh perjuangan para pelopor UKM terus subur dan segar, kesedaran terhadap sejarah penubuhan dibugar secara berterusan. Menginsafi bahawa UKM adalah institusi harapan masyarakat, seluruh warga universiti sama ada warga kerja mahupun pelajar diimbau supaya menyelami dan memahami keperluan rakyat menerusi persoalan yang berlegar dalam kehidupan bernegara. Namun ini tidak menghadkan jangkauan universiti terhadap segenap perkembangan malah pergolakan yang berlaku di peringkat antarabangsa. Universiti yang memiliki pelbagai kepakaran merentas disiplin diyakini berupaya melangkaui garis psikologikal yang membolehkannya beraksi tangkas dalam arena global serta sama-sama memberi penyelesaian permasalahan yang menghambat kehidupan sejagat.

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Farida Hanim binti Islahudin, RPh, MPharm (Hons) (Notts), MClinPharm (UKM), PhD (Notts)
Fazren bin Azmi, BBiotech (Hons) (Uni. of Queensland), PhD (Uni. of Queensland)
Juriyati binti Jalil, BSc (Hons) (UKM), MSc (UKM), PhD (UKM)
Khairana binti Husain, BSc (Hons) (UKM), MSc (UKM), PhD (UPM)
Lam Kok Wai, BSc (Hons) (UPM), PhD (UPM)
Malina binti Jasamai, RPh, BPharm (Hons) (Cardiff), PhD (Cardiff)
Mazlina binti Mohd Said, RPh, BPharm (Hons) (IIUM), PhD (London)
Mohd Hanif bin Zulfakar, RPh, BPharm (Hons) (UKM), PhD (Cardiff)
Ng Shiow Fern, RPh, MPharm (Hons) (IMU-Strathclyde), PhD (Strathclyde)
Noraida binti Mohamed Shah, RPh, MPharm (IMU-Strathclyde), MPharm (Clin) (USM), PhD (Belfast)
Norazrina binti Azmi, RPh, BPharm (Hons) (UKM), PhD (Nottingham)
Norsyahida binti Mohd Fauzi, BSc (UPM), PhD (Strathclyde)

Pensyarah Kanan (*Senior Lecturers*)
Adliah binti Mhd Ali, RPh, BPharm (Hons) (UKM), MPharm (Clin) (USM), PhD (Melbourne)
AKM Moyeenul Huq, BPharm (APU), MSc (APU), PhD (UKM)
Chandini Menon a/p Premakumar, BSc (Pharm) (Hons) (UKM), PhD (University of Liverpool)
Chong Wei Wen, RPh, BPharm (Hons) (UKM), PhD (Sydney)
Chua Eng Wee, RPh, BPharm (Hons) (UKM), PhD (Otago)

Hanisah binti Azhari, RPh, BPharm (Otago), Post. Grad. Cert. in Pharmacy (Otago), PhD (Otago)
Mohd Kaisan bin Mahadi, BSc (Adelaide), BHlthSc (Hons) (Adelaide), PhD (Leeds)
Ng Pei Yuen, RPh, MPharm (Hons) (IMU-Strathclyde), PhD (Strathclyde)
Nor Asyikin binti Mohd Tahir, Bsc (Hons)(Otago), PhD (UKM)
Nor Syafinaz binti Yaakob, BSc (Melbourne), Hons Deg PharmSc (Monash) PhD (Monash)
Nur Vaizura binti Mohamad, BSc (Hons)(UKM), Msc (UKM), PhD (UKM)
Nurul Ain binti Mohd Tahir, RPh, BPharm (Hons) (UKM), PhD (Uni, of Newcastle)
Shamin bin Mohd Saffian, RPh, BPharm (Otago), PgCertPharm (Otago), PhD (Otago)
Siti Azdiah binti Abdul Aziz, RPh, BSc(Pharm)(Hons)(Canada), MPharm.Clin. (UKM), PhD (UM)
Syaratul Dalina binti Yusoff, BSBM (Hons) (UIAM), MPharmSc (Tasmania), PhD (Birmingham)
Tuan Mazlelaa binti Tuan Mahmood, RPh, BPharm (Hons) (UKM), PhD (Belfast)
Zainol Akbar bin Zainal, RPh, BSc (Pharm) (Hons) (Canada), MPharm.Clin. (UKM), PhD (Clinical Pharmacy) (USM)
AKM Moyeenul Huq, BSc (Pharm)(Hons)(Bangladesh), MSc (PharmTech)(Bangladesh), PhD(UKM)

Sejarah Penubuhan (*History of Establishment)* Fakulti Farmasi (*Faculty of Pharmacy*)

Fakulti Farmasi, UKM Kampus Kuala Lumpur mempunyai sejarahnya yang tersendiri. Pada peringkat awal penubuhannya, ia dikenali sebagai Jabatan Farmasi dan beroperasi di bawah Fakulti Sains Kesihatan Bersekutu (FSKB), UKM. Jabatan ini ditubuhkan pada 1994 dengan tujuan memenuhi keperluan industri farmaseutikal dan menampung kekurangan bilangan profesional dalam sains farmaseutikal khususnya ahli farmasi. Seramai 21 orang pelajar menjadi kohort pertama dan memulakan pengajian mereka pada sesi akademik 1995-1996 di bawah program Sarjana Muda Farmasi dengan Kepujian.

The Faculty of Pharmacy at the UKM Kuala Lumpur Campus has a unique history. In its early years, it was known as the Department of Pharmacy and operated under the Faculty of Allied Health Sciences (FSKB), UKM. Established in 1994, the department aimed to meet the needs of the pharmaceutical industry and address the shortage of professionals in pharmaceutical science, particularly pharmacists. The first cohort of 21 students commenced their studies in the 1995/1996 academic session under the Bachelor of Pharmacy (Honours) programme.

Lokasi asal Jabatan Farmasi terletak di Jalan Temerloh, Kuala Lumpur sebelum berpindah ke Kampus Kuala Lumpur di Jalan Raja Muda Abdul Aziz pada 1998. Sepanjang tempoh berdiri sebagai sebuah jabatan di FKSB, beberapa program pengajian telah ditawarkan seperti Ijazah Sarjana Muda Farmasi dengan Kepujian, Sarjana Farmasi Klinikal, Sarjana Sains Kesihatan dan Doktor Falsafah. Hal ini membuktikan bahawa jabatan ini berkembang dengan mantap, dan graduannya dikatakan antara yang terhebat di negara ini. Melihat kematangan dan kemampuan Jabatan Farmasi yang semakin ke hadapan, selain status program farmasi sebagai sebuah program profesional, UKM mengambil keputusan untuk menaik taraf jabatan ini kepada sebuah fakulti.

The Pharmacy Department was originally located at Jalan Temerloh, Kuala Lumpur, before it relocated to the Kuala Lumpur Campus at Jalan Raja Muda Abdul Aziz in 1998. During its time as a department under FSKB, several academic programmes were offered, namely the Bachelor of Pharmacy (Honours), Master of Clinical Pharmacy, Master of Health Science, and Doctor of Philosophy. This reflects the department's steady growth, with its graduates recognised as among the best in the country. In recognition of its maturity, progress, and the professional status of the pharmacy programme, UKM decided to upgrade the department to a faculty.

Dengan rasminya, Fakulti Farmasi, UKM, ditubuhkan pada 1 Jun 2008. Dengan tertubuhnya sebuah fakulti, Fakulti Farmasi bersedia untuk memenuhi keperluan negara iaitu melahirkan ahli farmasi yang kompetetif, berkualiti dan profesional untuk berkhidmat di sektor awam dan swasta. Kerjaya farmasi merupakan kerjaya yang dianggap kritikal oleh Kementerian Kesihatan Malaysia dan Kementerian Pengajian Tinggi. Fakulti Farmasi bukan sahaja terlibat dalam pengajaran dan pembelajaran tetapi juga dalam penyelidikan, perkhidmatan farmasi dan perundingan serta bekerja rapat dengan fakulti/ institusi yang lain dalam bidang kesihatan. Ketika ini, Fakulti Farmasi menjalankan semua aktiviti utamanya di Kampus Kuala Lumpur (Blok B dan Blok P) dan di Hospital Canselor Tuanku Muhriz (HCTM) yang terletak di Bandar Tun Razak, Cheras.

The Faculty of Pharmacy, UKM, was officially established on 1 June 2008. With its establishment, the faculty set out to meet the nation's needs by producing competitive, high-quality, and professional pharmacists to serve in both the public and private sectors. The pharmacy profession has been recognised as a critical field by the Ministry of Health Malaysia and the Ministry of Higher Education. Beyond teaching and learning, the Faculty of Pharmacy is actively engaged in research, pharmacy services, and consultancy, collaborating closely with other faculties and institutions in the field of health sciences. At present, the faculty conducts all its core activities at the Kuala Lumpur Campus (Block B and Block P) and at the Hospital Canselor Tuanku Muhriz (HCTM) in Bandar Tun Razak, Cheras.

Visi Fakulti (*Faculty's Vision*)

Menerajui pendidikan, penyelidikan, dan perkhidmatan farmasi yang inovatif dan dinamik untuk kesejahteraan insan.

Leading innovative and dynamic pharmacy education, research, and services for the well-being of humanity.

Misi Fakulti (*Faculty's Mision*)

Melahirkan graduan yang holistik dan tersedia masa hadapan melalui pendidikan transformatif, beracuan kebangsaan dan penyelidikan berimpak.

Producing holistic and future-ready graduates through transformative education, national aspiration and impactful research.

Slogan Fakulti (*Faculty's Slogan*)

Ilmu, Mutu dan Budi.

Knowledge, Quality and Virtue.

Program Pengajian Siswazah

Fakulti Farmasi
Sesi Akademik 2025 - 2026

Program Pengajian Siswazah (Mod Penyelidikan) Fakulti Farmasi

Pengenalan

Penyelidikan dan pembangunan produk yang bercorak multidisiplin merupakan salah satu keutamaan yang sentiasa diberikan penekanan dalam program pengajian secara mod penyelidikan yang ditawarkan di Fakulit Farmasi iaitu Program Sarjana Sains dan Program Doktor Falsafah. Antara topik penyelidikan yang ditawarkan dalam dua program ini terbahagi kepada tiga bidang utama iaitu Kimia Farmaseutikal & Farmakologi, Farmaseutik dan Farmasi Klinikal & Amalan Farmasi.

Objektif Pendidikan Program (OPP) Pengajian Siswazah

1. Program Ijazah Sarjana Sains adalah untuk menghasilkan:

    OPP1 Sarjana yang menguasai pengetahuan lanjutan serta kemahiran praktikal, digital dan numerasi dalam bidang berkaitan farmasi selaras dengan keperluan profesion dan perkembangan industri.

    OPP2 Sarjana yang mempamerkan kemahiran kepimpinan, autonomi, kebertanggungjawaban dan komunikasi berkesan dengan pelbagai pihak berkepentingan.

    OPP3 Sarjana yang memiliki kemahiran pembelajaran sepanjang hayat serta pemikiran keusahawanan dalam menyelesaikan cabaran berkaitan bidang farmasi.

    OPP4 Sarjana yang beretika, berintegriti dan profesional dalam melaksanakan tanggungjawab dalam bidang berkaitan farmasi.

2. Program Ijazah Doktor Falsafah adalah untuk menghasilkan:

    OPP1 Pakar bidang farmasi yang berupaya mensintesis idea baharu dan mengintegrasi pengetahuan serta kemahiran praktikal, digital dan numerasi bagi memperkukuh profesion dan memacu pembangunan industri.

OPP2 Pakar bidang farmasi yang mempamerkan kepimpinan pemikiran, autonomi profesional, tanggungjawab strategik dan komunikasi berkesan dengan pelbagai pihak berkepentingan.

OPP3 Pakar bidang farmasi yang mengamalkan pembelajaran sepanjang hayat dan pemikiran keusahawanan untuk menjana penyelesaian inovatif dalam menangani cabaran.

OPP4 Pakar bidang farmasi yang beretika, berintegriti dan profesional dalam memimpin penyelidikan.

HASIL PEMBELAJARAN PROGRAM (HPP) SARJANA SAINS DAN DOKTOR FALSAFAH

Sarjana Sains

Program Ijazah Sarjana Sains bertujuan melahirkan graduan yang:

HPP1 Menguasai pengetahuan lanjutan berkaitan bidang farmasi.

HPP2 Menganalisis permasalahan kompleks dalam bidang berkaitan farmasi secara kritikal dan kreatif.

HPP3 Melaksanakan penyelidikan dengan kemahiran praktikal untuk menangani isu dalam bidang berkaitan farmasi.

HPP4 Menunjukkan kerjasama dengan individu dalam komuniti pembelajaran yang pelbagai.

HPP5 Mempamerkan kemahiran berkomunikasi secara berkesan dengan komuniti saintifik dan khalayak umum dalam bidang berkaitan farmasi.

HPP6 Mengaplikasi teknologi digital dan teknik analisis yang sesuai untuk penyelesaian masalah dalam bidang berkaitan farmasi.

HPP7 Menggunakan kemahiran numerik, grafik, dan bantuan visual untuk penyelesaian masalah dalam bidang berkaitan farmasi.

HPP8 Mempamerkan kualiti kepimpinan, intelektual, berpasukan, autonomi dan kebertanggungjawaban dalam pelaksanaan tugasan.

HPP9 Mempamerkan komitmen terhadap pembelajaran sepanjang hayat dan pembangunan diri.

HPP10 Mempamerkan ciri-ciri keusahawanan berkaitan bidang farmasi.

HPP11 Melaksanakan penyelidikan dengan mematuhi amalan undang-undang, etika, profesional dan lestari.

Doktor Falsafah

Program Ijazah Doktor Falsafah bertujuan melahirkan graduan yang:

HPP1 Mengintegrasi pengetahuan lanjutan dan penyelidikan terdahulu untuk menjana penemuan baharu dalam bidang berkaitan farmasi.

HPP2 Mensintesis maklumat bagi penyelesaian masalah kompleks secara kritikal, kreatif dan inovatif dalam bidang berkaitan farmasi.

HPP3 Melaksanakan penyelidikan dengan kemahiran praktikal secara berdikari, teliti dan sistematik dengan pengawasan minimum.

HPP4 Menunjukkan kerjasama dalam pasukan penyelidikan dan komuniti profesional yang pelbagai.

HPP5 Mempamerkan kemahiran berkomunikasi secara efektif mengenai penyelidikan dan penemuan dengan komuniti saintifik dan masyarakat umum.

HPP6 Mengaplikasi teknologi digital dan pendekatan analitik untuk memajukan pengetahuan dalam bidang berkaitan farmasi.

HPP7 Menggunakan kemahiran numerik dan visualisasi data kompleks bagi penyelesaian masalah berkaitan bidang dan penyebaran hasil penyelidikan.

HPP8 Menunjukkan kepimpinan intelektual, kebertanggungjawaban, profesional dan keupayaan membuat keputusan strategik.

HPP9	Mengamalkan pembelajaran sepanjang hayat untuk pengukuhan pengetahuan dan kemahiran profesional.
HPP10	Mengintegrasi pemikiran keusahawanan dalam reka bentuk penyelidikan dan inovasi dalam bidang berkaitan farmasi.
HPP11	Melaksanakan penyelidikan dengan mematuhi amalan undang-undang, etika, profesional dan lestari.

Jenis Pengajian

Sarjana Sains

Program Sarjana Sains yang ditawarkan ini merupakan program kajian penyelidikan yang berkaitan yang mewajibkan penulisan disertasi yang tidak melebihi 60,000 perkataan. Calon wajib mempertahankan disertasi di hadapan Jawatankuasa Pemeriksa dan lulus peperiksaan lisan (viva) serta menenuhi syarat penerbitan bagi pengurniaan Ijazah Sarjana Sains iaitu menerbitkan sekurang-kurangnya SATU (1) manuskrip yang diindeks oleh WoS.

Bagi pengajian sepenuh masa, tempoh lazim ialah dua (2) tahun dan tempoh maksimum ialah tiga (3) tahun; bagi pengajian separuh masa, tempoh lazim ialah tiga (3) tahun dan tempoh maksimum ialah empat (4) tahun.

Doktor Falsafah

Program Doktor Falsafah yang ditawarkan ini merupakan program kajian penyelidikan yang berkaitan yang mewajibkan penulisan tesis yang tidak melebihi 100,000 perkataan. Calon wajib mempertahankan tesis di hadapan Jawatankuasa Pemeriksa dan lulus peperiksaan lisan (viva) serta menenuhi syarat penerbitan bagi pengurniaan Ijazah Doktor Falsasah iaitu menerbitkan sekurang-kurangnya DUA (2) manuskrip yang diindeks oleh WoS.

Bagi pengajian sepenuh masa, tempoh lazim ialah tiga (3) tahun dan tempoh maksimum adalah enam (6) tahun; bagi pengajian separuh masa, tempoh lazim adalah empat (4) tahun dan tempoh maksimum adalah tujuh (7) tahun.

Tambah masa dan penangguhan pengajian

Pelajar boleh membuat permohonan tambah masa pengajian bagi tiga (3) semester sebelum mencapai tempoh maksimum pengajian secara bertulis kepada Dekan. Permohonan tambah masa bagi semester keempat perlu diluluskan oleh Senat.

Pelajar juga boleh memohon untuk menangguhkan pengajian berdasarkan sebab yang munasabah dan tempoh penangguhan ini tidak akan diambil kira sebagai sebahagian daripada tempoh pengajian yang ditetapkan.

Penangguhan pengajian boleh dibenarkan untuk tempoh minimum satu (1) semester dan tidak melebihi empat (4) semester sepanjang tempoh pengajian.

Kursus Wajib Universiti

(a) Untuk calon luar negara yang tidak mempunyai pengetahuan dan kemahiran asas dalam Bahasa Melayu atau Bahasa Melayu bukan bahasa utama negara pelajar (bahasa kebangsaan atau bahasa rasmi):

Kod	**Tajuk Kursus**	**Unit**
LMCM1083	Bahasa Melayu Komunikasi Antarabangsa	3

(b) Untuk calon dari Singapura, Brunei Darussalam, Indonesia dan Thailand bahagian Selatan:

Kod	**Tajuk Kursus**	**Unit**
LMCM1093	Bahasa Melayu Untuk Pelajar Nusantara	3

Kursus Wajib Fakulti

Kod	**Tajuk Kursus***	**Unit**
NFNP6013	Kaedah Penyelidikan dan Inovasi	3
NFNP7013	Pengurusan Penyelidikan, Inovasi dan Pengkomersilan[#]	3

*pelajar hanya perlu mendaftar satu kursus sahaja

Sinopsis Kursus Wajib Fakulti

NFNP6013 Kaedah Penyelidikan dan Inovasi

Kursus ini menfokuskan kepada tiga aspek penyelidikan iaitu kaedah penyelidikan, kaedah analisa statistik dan inovasi. Setelah mengikuti kursus ini, pelajar seharusnya mampu melakukan tinjauan literatur, mengaplikasi kaedah penyelidikan secara dan teknik analisis statistik yang bersesuaian, mempunyai pengetahuan berkenaan harta intelek dan pengkomersilan serta berkemahiran untuk mencadangkan penyelidikan berorientasi projek keusahawanan.

Bacaan Asas

Panduan Penulisan Tesis Gaya UKM. Cetakan Ketiga 2015. Bangi: Pusat Siswazah, Universiti Kebangsaan Malaysia.

Wan Muhammad Amir W Ahmad, Basarudin Ahmad, Sarimah Abdullah, Nor Azlida Aleng@Mohamad. 2017. *Statistical Analysis Using SPSS For Health Sciences*. Penerbit USM.

Herman, A. 2025. *Research Methodology: Best Practices for Rigorous, Credible, and Impactful Research*. India:Sage.

Cargill, M. and O'Connor, P.D., 2021. *Writing scientific research articles: Strategy and steps*. John Wiley & Sons.

Lebrun, J.L. and Lebrun, J., 2021. *Scientific writing 3.0: a reader and writer's guide*. World Scientific.

NFNP7013 Pengurusan Penyelidikan, Inovasi dan Pengkomersilan

Kursus ini memfokuskan kepada tiga aspek penyelidikan iaitu pengurusan penyelidikan, inovasi dan pengkomersilan. Setelah mengikuti kursus ini, pelajar seharusnya mampu menghasilkan artikel ulasan, mengaplikasi kaedah penyelidikan dan teknik analisis statistik yang bersesuaian, melalui proses pendaftaran harta intelek dan memahami produk komersil berasaskan penyelidikan serta berkemahiran untuk mencadangkan penyelidikan berorientasi projek keusahawanan.

Bacaan Asas

Panduan Penulisan Tesis Gaya UKM. Cetakan Ketiga 2015. Bangi: Pusat Siswazah, Universiti Kebangsaan Malaysia.

Wan Muhammad Amir W Ahmad, Basarudin Ahmad, Sarimah Abdullah, Nor Azlida Aleng@Mohamad. 2017. *Statistical Analysis Using SPSS For Health Sciences*. Penerbit USM.

Herman, A. 2025. *Research Methodology: Best Practices for Rigorous, Credible, and Impactful Research*. India:Sage.

Cargill, M. and O'Connor, P.D., 2021. *Writing scientific research articles: Strategy and steps*. John Wiley & Sons.

Lebrun, J.L. and Lebrun, J., 2021. *Scientific writing 3.0: a reader and writer's guide*. World Scientific.

Topik Penyelidikan Sarjana Sains dan Doktor Falsafah

Kimia Farmaseutikal & Farmakologi
- Kajian Fitokimia
- Kajian Farmakognosi
- Pembangunan Produk Herba daripada Hasilan Semula Jadi
- Sintesis Terbitan Bioaktif Novel
- Analisis Herba
- Kajian Farmakologi dan Toksikologi
- Analisis farmaseutikal dan kawalan kualiti

Farmaseutik
- Penyampaian Dadah Transdermal dan Topikal
- Bentuk Dos Pepejal
- Penyampaian Protein dan Gen
- Sediaan Ubat Suntikan dan Steril
- Penyampaian Dadah Kolon
- Sintesis Polimer untuk Penyampaian dan Sasaran Dadah
- Pembangunan vaksin

Farmasi Klinikal & Amalan Farmasi
- Farmakoterapeutik
- Farmakokinetik Klinikal
- Farmakogenomik
- Keselamatan Ubat
- Kepatuhan Ubat
- Kompetensi Ahli Farmasi
- Pendidikan Farmasi
- Dadah dalam Sukan

Penukaran daripada Program Sarjana ke Program Kedoktoran

Syarat permohonan tambahan untuk Fakulti Farmasi adalah seperti berikut:-

a. Hanya pelajar Sarjana (mod penyelidikan) yang mendaftar secara sepenuh masa sahaja layak memohon penukaran bentuk pengajian.
b. Calon mestilah memperolehi sekurang-kurangnya CGPA 3.00 atau setaraf bagi ijazah sarjana muda.
c. Calon mestilah mempunyai sekurang-kurangnya satu penerbitan dalam bidang penyelidikan yang sedang dijalankan yang telah diterbitkan atau telah diterima untuk diterbitkan dalam jurnal yang diindeks oleh WoS.
d. Calon mestilah merupakan pengarang utama atau kedua atau memberikan sumbangan yang bermakna dalam penerbitan yang dikemukakan.
e. Penerbitan yang dikemukakan boleh digunakan sekali sahaja oleh seorang calon.
f. Mempunyai laporan kemajuan yang memuaskan dan mendapat sokongan penyelia.

Tatacara permohonan adalah seperti berikut:

a. Pelajar perlu membuat permohonan selewat-lewatnya pada minggu **KESEPULUH** semester ke-3 pengajian, agar penilaian dapat dilakukan dalam semester ke-3 dan keputusan penilaian dapat dikeluarkan sebelum semester ke-4 pengajian bermula.

b. Calon menyediakan proposal baharu untuk pengajian Doktor Falsafah yang merangkumi:

   - Tambahan skop penyelidikan
   - Signifikan penyelidikan
   - Tambahan objektif penyelidikan
   - Tambahan masa penyelidikan
   - Idea baharu dalam penyelidikan tersebut
   - Penemuan baharu yang mungkin akan diperolehi

c. Calon menyerahkan permohonan dan dokumen yang diperlukan kepada penyelia untuk mendapat perakuan.

d. Calon membuat permohonan secara bertulis kepada Dekan setelah mendapat perakuan Penyelia Utama/Pengerusi Jawatankuasa Penyeliaan.

e. Permohonan calon akan disaring di peringkat Jawatankuasa Pengajian Siswazah (JKPS). Sekiranya layak, JKPS akan mencadangkan calon Panel Penilai untuk dilantik oleh Dekan yang terdiri daripada:

- Dekan/Pengarah atau wakilnya sebagai pengerusi; dan
- Ketua Jabatan/Pengerusi Pusat Pengajian atau wakilnya; dan
- Tiga (3) orang staf akademik Universiti dalam bidang berkaitan yang terdiri daripada Profesor atau Profesor Madya; dan
- Penyelia Utama atau Pengerusi Jawatankuasa Penyeliaan;

f. Calon akan membentangkan proposal penyelidikan Doktor Falsafah tersebut dengan kehadiran ahli panel penilai.

g. Panel penilai akan:

- Menilai dan memberi maklumbalas berkaitan dengan cadangan penyelidikan dan pencapaian pelajar dalam sesi pembentangan. Markah lulus ialah 60% dan ke atas.

- Sekiranya pelajar layak, panel boleh memperakukan permohonan penukaran daripada program sarjana kepada program kedoktoran; dan

- Memaklumkan keputusan penilaian kepada calon selepas sesi penilaian.

- Memaklumkan secara bertulis tentang penukaran program pengajian pelajar dan dikemukakan kepada Pusat Pengurusan Akademik (Akademik UKM).

h. Calon akan membuat pembetulan proposal mengikut cadangan panel penilai.

i. Calon menyerahkan proposal yang telah ditambah baik untuk pengesahan penyelia.

j. Keputusan permohonan pertukaran akan dimaklumkan oleh Dekan secara bertulis kepada calon.

(Mesyuarat Fakulti Farmasi 22 Disember 2021)

Penerbitan Manuskrip oleh Pelajar Siswazah untuk Penganugerahan Ijazah

Syarat ini juga merujuk kepada Perkara 54(1)(c) Peraturan-peraturan Universiti Kebangsaan Malaysia (Pengajian Siswazah) 2021.

1. Semua calon wajib memenuhi syarat penerbitan bagi pengurniaan ijazah seperti berikut:

   a. Program Sarjana Sains
      - Satu (1) Artikel Jurnal Berindeks WoS.

   b. Program Doktor Falsafah
      - Dua (2) Artikel Jurnal Berindeks WoS.

2. Semasa penyerahan disertasi/tesis untuk pemeriksaan, calon perlu:

   a. Mengisi Borang Penyerahan Disertasi/Tesis untuk pemeriksaan;

   b. Mengisi borang dan membuat pembayaran pemeriksaan tesis kepada Bendahari UKM; dan

   c. Melampirkan bukti manuskrip telah diterima untuk penerbitan.

3. Merujuk pada peraturan 14A(6), Fakulti/Institut boleh memberi masa maksimum dua belas (12) bulan bagi pelajar melengkapkan syarat penerbitan selepas tarikh penghantaran salinan keras Disertasi/Tesis yang telah dibetulkan dan mendapat pengesahan daripada penama yang telah dipersetujui oleh Jawatankuasa Peperiksaan Lisan.

4. Tempoh maksimum dua belas (12) bulan ini adalah tertakluk kepada tempoh maksimum pengajian.

5. Pelajar yang tidak melengkapkan syarat penerbitan selepas tempoh yang disebut dalam subperaturan 14A(6) tersebut adalah dianggap “Gagal dan Tidak Layak Dianugerahkan Ijazah”.

(KELULUSAN SENAT KE-451 bertarikh 16 Januari 2019) - untuk syarat penerbitan

Pembentangan dan Kehadiran di Seminar Siswazah Fakulti

Syarat ini juga merujuk kepada Perkara 54(1)(d) Peraturan-peraturan Universiti Kebangsaan Malaysia (Pengajian Siswazah) 2021.

Sebelum menyerahkan disertasi/tesis untuk pemeriksaan, setiap pelajar siswazah (mod penyelidikan) mesti:

a. membentangkan:

i. cadangan penyelidikan
ii. laporan kemajuan
iii. laporan akhir penyelidikan

b. hadir ke Seminar Siswazah.

(Mesyuarat Fakulti Farmasi - 18 Februari 2013 & Mesyuarat Khas Fakulti Farmasi - 25 Julai 2013)

Syarat Lulus Kursus Fakulti dan Universiti

Syarat ini juga merujuk kepada Perkara 54(1) (c) Peraturan-peraturan Universiti Kebangsaan Malaysia (Pengajian Siswazah) 2021.

1. Pihak fakulti menetapkan bahawa pelajar mesti lulus kesemua kursus tersebut bagi pengurniaan ijazah (termasuk bagi kursus Bahasa Melayu dan kursus NFNP).

(Mesyuarat Senat 413-27 Ogos 2015)

Program Sarjana Farmasi Klinikal

Pengenalan

Farmasi Klinikal adalah salah satu bidang farmasi yang giat berkembang. Farmasi klinikal merupakan disiplin farmasi yang mengaplikasikan kemahiran klinikal dalam praktis farmasi dan penyampaian penjagaan farmaseutikal. Kursus pascasiswazah ini direka untuk menyediakan ahli farmasi dengan kemahiran penyampaian perkhidmatan farmasi klinikal pada tahap yang tinggi dalam pelbagai bentuk praktis. Kursus-kursus yang ditawarkan akan memberikan pengetahuan dan kemahiran yang khusus dalam praktis farmasi klinikal dan farmakoterapi.

Objektif

Objektif program ini adalah untuk melahirkan:

OPP1 Sarjana yang menguasai pengetahuan lanjutan serta kemahiran farmakoterapi, digital dan numerasi dalam bidang farmasi klinikal selaras dengan keperluan profesion dan perkembangan industri.

OPP2 Sarjana yang mempamerkan kemahiran kepimpinan, autonomi, kebertanggungjawaban dan komunikasi.

OPP3 Sarjana yang memiliki kemahiran pembelajaran sepanjang hayat serta pemikiran keusahawanan dalam menyelesaikan cabaran berkaitan bidang farmasi klinikal.

OPP4 Sarjana yang beretika, berintegriti dan profesional dalam melaksanakan tanggungjawab dalam bidang farmasi klinikal.

Jumlah Unit

Jumlah unit wajib yang ditetapkan bagi program ini ialah 40 unit.

HASIL PEMBELAJARAN PROGRAM (HPP)
SARJANA FARMASI KLINIKAL

Program ini bertujuan melahirkan graduan yang:

HPP1 Menguasai pengetahuan dan pemahaman lanjutan berkaitan bidang farmasi klinikal.

HPP2 Menganalisis permasalahan kompleks dalam bidang farmasi klinikal secara kritikal dan kreatif.

HPP3 Mengaplikasi kemahiran praktikal dalam menangani isu-isu berkaitan bidang farmasi klinikal.

HPP4 Menunjukkan kerjasama dengan individu dalam komuniti pembelajaran dan pekerjaan yang pelbagai dalam persekitaran klinikal.

HPP5 Mempamerkan kemahiran berkomunikasi secara berkesan dengan komuniti saintifik dan khalayak umum dalam bidang farmasi klinikal.

HPP6 Mengaplikasi teknologi digital dan teknik analisis yang sesuai untuk penyelesaian masalah dalam bidang farmasi klinikal.

HPP7 Menggunakan kemahiran numerik dan grafik untuk penyelesaian masalah dalam bidang farmasi klinikal.

HPP8 Mempamerkan kualiti kepimpinan, intelektual, berpasukan, autonomi dan kebertanggungjawaban dalam pelaksanaan tugasan.

HPP9 Mempamerkan komitmen terhadap pembelajaran sepanjang hayat dan pembangunan diri.

HPP10 Mempamerkan ciri-ciri keusahawanan berkaitan dalam amalan farmasi klinikal.

HPP11 Mematuhi amalan undang-undang, etika, profesional dan lestari.

Kurikulum Program Sarjana Farmasi Klinikal

Secara Sepenuh Masa:

Tempoh lazim bagi pengajian sepenuh masa ialah satu (1) tahun atau dua (2) semester. Senarai kursus yang ditawarkan bagi setiap semester adalah seperti berikut:

Semester I

Kod	**Tajuk Kursus (Kursus Teori & Penyelidikan)**	**Unit**
NFNK6312	Farmakoterapeutik Lanjutan I	2
NFNK6332	Kaedah Penyelidikan dan Biostatistik	2
NFNK6352	Amalan Farmasi Klinikal Lanjutan	2
NFNK6372	Pengenalan Kepada Klerksyip Dan Pengurusan Kes Klinikal	2
NFNK6392	Projek Penyelidikan Klinikal I	2
	Jumlah kredit	**10**

Kod	**Tajuk Kursus (Klerksyip Wajib)***	**Unit**
	**Nota: Pilih dua kursus klerksyip*	
NFNK6413	Klerksyip Farmakoterapi Dalam Perubatan Dalaman I	3
NFNK6423	Klerksyip Farmakoterapi Dalam Perubatan Dalaman II	3
NFNK6433	Klerksyip Farmakoterapi Dalam Jagaan Kritikal	3
NFNK6443	Klerksyip Farmakoterapi Dalam Pediatrik	3
	Jumlah kredit	**6**

Kod	**Tajuk Kursus (Klerksyip Elektif)***	**Unit**
	**Nota: Pilih satu kursus klerksyip*	
NFNK6512	Klerksyip Farmakoterapi Dalam Obstetrik Dan Ginekologi	2
NFNK6522	Klerksyip Farmakoterapi Dalam Psikiatri	2
NFNK6532	Klerksyip Farmakokinetik Klinikal	2
NFNK6542	Klerksyip Farmakoterapi Dalam Onkologi Dan Farmasi Nuklear	2
NFNK6552	Klerksyip Farmakoterapi dalam Surgeri dan Pemakanan Parenteral	2
NFNK6562	Klerksyip Perkhidmatan Maklumat Ubat	2
NFNK6572	Klerksyip Pemantauan Pengurusan Ubat Pesakit	2
	Jumlah kredit	**2**

Jumlah kredit untuk Semester I = 18 unit

Secara Sepenuh Masa:

Semester II

Kod	**Tajuk Kursus (Kursus Teori & Penyelidikan)**	**Unit**
NFNK6322	Farmakoterapeutik Lanjutan II	2
NFNK6342	Farmakoterapeutik Lanjutan III	2
NFNK6362	Farmakoterapi Individu	2
NFNK6382	Amalan Klinikal Dalam Farmasi Komuniti	2
NFNK6326	Projek Penyelidikan Klinikal II	6
	Jumlah kredit	**14**

Kod	**Tajuk Kursus (Klerksyip Wajib)**	**Unit**
	**Nota: Pilih dua kursus klerksyip*	
NFNK6413	Klerksyip Farmakoterapi Dalam Perubatan Dalaman I	3
NFNK6423	Klerksyip Farmakoterapi Dalam Perubatan Dalaman II	3
NFNK6433	Klerksyip Farmakoterapi Dalam Jagaan Kritikal	3
NFNK6443	Klerksyip Farmakoterapi Dalam Pediatrik	3
	Jumlah kredit	**6**

Kod	**Tajuk Kursus (Klerksyip Elektif)**	**Unit**
	**Nota: Pilih satu kursus klerksyip*	
NFNK6512	Klerksyip Farmakoterapi Dalam Obstetrik Dan Ginekologi	2
NFNK6522	Klerksyip Farmakoterapi Dalam Psikiatri	2
NFNK6532	Klerksyip Farmakokinetik Klinikal	2
NFNK6542	Klerksyip Farmakoterapi Dalam Onkologi Dan Farmasi Nuklear	2
NFNK6552	Klerksyip Farmakoterapi dalam Surgeri dan Pemakanan Parenteral	2
NFNK6562	Klerksyip Perkhidmatan Maklumat Ubat	2
NFNK6572	Klerksyip Pemantauan Pengurusan Ubat Pesakit	2
	Jumlah kredit	**2**

Jumlah kredit Semester II = 22 unit

Jumlah kredit keseluruhan = 40 unit

Secara Separuh Masa:

Tempoh lazim bagi pengajian separuh masa ialah dua (2) tahun atau empat (4) semester. Dalam setiap semester, pelajar separuh masa dibenarkan mendaftar tidak lebih daripada:
(i) dua belas (12) kredit, ATAU
(ii) tiga (3) kursus

Cadangan pendaftaran kursus dalam <u>tahun pertama:</u>

<u>Semester I</u>

Kursus teori × 3	6 unit
Klerksyip wajib × 1	3 unit
Jumlah kredit	**9 unit**

<u>Semester II</u>

Kursus teori × 3	6 unit
Klerksyip wajib × 1	3 unit
Klerksyip elektif × 1	2 unit
Jumlah kredit	**11 unit**

Jumlah kredit Tahun I = 20 unit

Cadangan pendaftaran kursus dalam <u>tahun kedua:</u>

<u>Semester I</u>

Kursus teori × 1	2 unts
Klerksyip wajib × 1	3 unit
Klerksyip elektif × 1	2 unit
Projek penyelidikan I	2 unit
Jumlah kredit	**9 unit**

<u>Semester II</u>

Kursus Teori × 1	2 units
Klerksyip wajib × 1	3 units
Projek penyelidikan II	6 units
Jumlah kredit	**11 unit**

Jumlah kredit Tahun II = 20 unit

<u>Jumlah kredit keseluruhan = 40 unit</u>

Kursus Wajib Universiti

(a) Untuk calon luar negara yang tidak mempunyai pengetahuan dan kemahiran asas dalam Bahasa Melayu atau Bahasa Melayu bukan bahasa utama negara pelajar (bahasa kebangsaan atau bahasa rasmi):

Kod	**Tajuk Kursus**	**Unit**
LMCM1083	Bahasa Melayu Komunikasi Antarabangsa	3

(b) Untuk calon dari Singapura, Brunei Darussalam, Indonesia dan Thailand bahagian Selatan:

Kod	**Tajuk Kursus**	**Unit**
LMCM1093	Bahasa Melayu Untuk Pelajar Nusantara	3

Sinopsis Kursus Program Sarjana Farmasi Klinikal

Kursus Teras Program (Teori)

NFNK6312 Farmakoterapeutik Lanjutan I

Kursus ini mengandungi kuliah dan pembelajaran berasaskan masalah. Pelajar akan dilatih dalam pengurusan penyakit yang berkaitan dari segi proses patofisiologi/patogenesis, tanda-tanda dan simptom-simptom klinikal, rawatan farmakoterapi berasaskan bukti terkini, pemilihan rawatan terindividu, kaedah-kaedah pemantauan keberkesanan rawatan dan kesan sampingan /mudarat ubat berkaitan, dan pengurusan bukan farmakologi. Bidang farmakoterapi yang terkandung dalam kursus ini adalah kardiologi, respiratori, nefrologi dan neurologi.

Bacaan Asas

Chisholm-Burns, M.A., et al. 2016 Pharmacotherapy Principles & Practice, 4th ed, New York : McGraw-Hill Medical.

DiPiro, J.T., Yee, G.C, Posey, L.M. 2019. Pharmacotherapy : A Pathophysiologic Approach, 11th ed, New York : McGraw-Hill Medical.

Schwinghammer, T.L. 2017. Pharmacotherapy Casebook: A Patient-Focused Approach. 10th ed. New York: McGraw-Hill Medical.

Walker, R. & Whittlesea, C. 2018. Clinical Pharmacy And Therapeutics, 6th ed, Edinburgh: Churchill Livingstone/Elsevier.

Zeind CS and Carvalho MG. 2017 Applied therapeutics: The clinical use of drugs. 11th ed. Vancouver: Applied Therapeutics.

NFNK6322 Farmakoterapeutik Lanjutan II

Kursus ini mengandungi kuliah dan pembelajaran berasaskan masalah. Pelajar akan dilatih dalam pengurusan penyakit yang berkaitan dari segi proses patofisiologi/ patogenesis, tanda-tanda dan simptom-simptom klinikal, rawatan farmakoterapi berasaskan bukti terkini, pemilihan rawatan terindividu, kaedah-kaedah pemantauan keberkesanan rawatan dan kesan sampingan /mudarat ubat berkaitan, dan pengurusan bukan farmakologi. Bidang farmakoterapi yang terkandung dalam kursus ini adalah endokrinologi, pengurusan luka, gastroenterologi, obstetrik dan ginekologi, dermatologi, farmasi nuklear dan reumatologi.

Bacaan Asas

Chisholm-Burns, M.A., Schwinghammer, T., Malone, P., Kolesar, J., Lee, K.C., & Bookstaver, P.B. 2019. Pharmacotherapy Principles & Practice, 5th ed, New York : McGraw-Hill Medical.

DiPiro, J.T., Yee, G.C, Posey, L.M. 2019. Pharmacotherapy : A Pathophysiologic Approach, 11th ed, New York : McGraw-Hill Medical.

Schwinghammer, T.L. 2017. Pharmacotherapy Casebook: A Patient-Focused Approach. 10th ed. New York:McGraw-Hill Medical.

Walker, R. & Whittlesea, C. 2018. Clinical Pharmacy And Therapeutics, 6th ed, Edinburgh: Churchill Livingstone/Elsevier.

Zeind C.S. & Carvalho M.G. 2017 Applied therapeutics: The clinical use of drugs. 11th ed. Vancouver: Applied Therapeutics.

NFNK6332 Kaedah penyelidikan dan biostatistik

Kursus ini mengandungi sesi kuliah dan bengkel. Pelajar akan didedahkan kepada prinsip-prinsip epidemiologi, pembangunan metodologi penyelidikan yang merangkumi pelbagai jenis reka bentuk kajian, jenis-jenis kaedah pensampelan dan bias, dan statistik yang merangkumi jenis- jenis data, penentuan saiz sampel dan kuasa kajian, jenis-jenis analisis statistik dan pemilihan analisis statistik yang bersesuaian dengan kajian.

Bacaan Asas

Bowers D., 2019. Medical Statistics from Scratch: An Introduction for Health Professionals, 4th Edition. John Wiley & Sons Ltd: Chichester.

Kestenbaun B., 2019. Epidemiology and Biostatistics: Practice Problem Workbook. Springer, Cham

Peacock J.L., Kerry S.M., Balise R.R. 2017. Presenting Medical Statistics from Proposal to Publication. Oxford University Press : Oxford.

Seritan G.C. et al., 2019. Guidelines for Small Size Samples Biostatistics in Current Medical Practice, E-Health and Bioengineering Conference (EHB), Romania, pp. 1-4.

Wisniewski, C. S. et al. 2019. Medical Literature Evaluation and Biostatistics. Clinical Pharmacy Education, Practice and Research, 143–162. doi:10.1016/b978-0- 12-814276- 9.00010-6.

NFNK6342 Farmakoterapeutik Lanjutan III

Kursus ini mengandungi kuliah dan pembelajaran berasaskan masalah. Pelajar akan dilatih dalam pengurusan penyakit yang berkaitan dari segi proses patofisiologi/patogenesis, tanda-tanda dan simptom-simptom klinikal, rawatan farmakoterapi berasaskan bukti terkini, pemilihan rawatan terindividu, kaedah-kaedah pemantauan keberkesanan rawatan dan kesan sampingan /mudarat ubat berkaitan, dan pengurusan bukan farmakologi. Bidang farmakoterapi yang terkandung dalam kursus ini adalah penyakit berjangkit, imunologi dan onkologi.

Bacaan Asas

Chisholm-Burns, M.A., Schwinghammer, T., Malone, P., Kolesar, J., Lee, K.C., & Bookstaver, P.B. 2019. Pharmacotherapy Principles & Practice, 5th ed, New York : McGraw-Hill Medical.

DiPiro, J.T., Yee, G.C, Posey, L.M. 2019. Pharmacotherapy : A Pathophysiologic Approach,11th ed, New York : McGraw-Hill Medical.

Schwinghammer, T.L. 2019. Pharmacotherapy Casebook: A Patient-Focused Approach. 11th ed. New York:McGraw-Hill Medical.

Young, L. Y. & Koda-Kimble, M. A. 2018 Applied therapeutics: The clinical use of drugs.11th ed. Vancouver: Applied Therapeutics.

Wells B.G., DiPiro, J.T., Schwinghammer, T.L., DiPiro, C.V. 2017. Pharmacotherapy handbook. 10th ed. McGraw-Hill Education USA.

NFNK6352 Amalan Farmasi Klinikal Lanjutan

Dalam kursus ini, pelajar akan dilatih untuk mengaplikasikan konsep farmasi klinikal dan kemahiran amalan farmasi lanjutan. Perbincangan juga meliputi aplikasi konsep penjagaan farmaseutikal dalam perkhidmatan-perkhidmatan farmasi terkhusus, kemahiran komunikasi dan pengurusan maklumat ubat dan racun.

Bacaan Asas

da Costa F.A., Foppe can Mil J.W. & Alvarez-Risco A. 2018. The pharmacist guide to implementing pharmaceutical care. Springer.

Tietze K.J. 2012. Clinical Skills for Pharmacists: A patient-focused approach. 3rd ed. Elsevier.

Warholak T.L. & Nau D.P. 2010. Quality and safety in pharmacy practice. New York : McGraw-Hill Medical.

DiPiro, J.T., Yee, G.C, Posey, L.M. 2019. Pharmacotherapy : A Pathophysiologic Approach, 11th ed, New York : McGraw-Hill Medical.

Walker, R. & Whittlesea, C. 2018. Clinical Pharmacy And Therapeutics, 6th ed, Edinburgh: Churchill Livingstone/Elsevier

NFNK6362 Farmakoterapi Individu

Kursus ini mengandungi kuliah dan pembelajaran berasaskan masalah. Pelajar akan dilatih untuk menguasai konsep farmakokinetik dan farmakodinamik klinikal terkini dan mengaplikasikan dalam penjagaan farmaseutikal. Pelajar akan dilatihkan dalam pengurusan penyakit pesakit secara individu untuk mengoptimumkan kesan rawatan. Proses penyampaian perkhidmatan dibincangkan dari segi penilaian status klinikal pesakit, pemilihan ubat dan sasaran kepekatan ubat plasma/serum, merekabentuk regimen dos, mentafsir kepekatan ubat di dalam plasma/serum, proses pengubahsuaian dos dan cadangan regimen rawatan.

Bacaan Asas

Rowland, M. & Tozer, T.N. 2010. Clinical Pharmacokinetics: concepts and applications, 4th ed. Philadelphia : Lippincott William and Wilkins.

Winter, M.E. 2017. Winter's Basic Clinical Pharmacokinetics, 6th ed. Philadelphia : Lippincott Williams & Wilkins.

Murphy, J.E. 2017. Clinical pharmacokinetics, 6th Ed. ASHP.

Rosenbaum S.E. 2016. Basic Pharmacokinetics and Pharmacodynamics: An Integrated Textbook and Computer Simulations, 2nd Edition: Wiley.

Jurnal-jurnal terkini.

NFNK6372 Pengenalan Kepada Klerksyip dan Pengurusan Kes Klinikal

Kursus ini melatih pelajar dalam proses klerksyip yang sistematik dan pengurusan kes klinikal yang berkesan. Topik-topik yang dibincangkan merangkumi etika dan imej profesional, hubungan profesional ahli farmasi klinikal bersama pesakit dan ahli profesional kesihatan lain, kepelbagaian data makmal dan klinikal, kutipan data klinikal dan pengubatan, dokumentasi kes klinikal, aplikasi amalan berasaskan bukti dan nilai dalam rawatan ubat pesakit, perancangan terapi ubat dan pemantauannya, keperluan pendidikan pesakit, dan pendekatan klinikal untuk populasi khusus seperti jagaan rapi, pediatrik, obstetrik dan ginekologi (O&G).

Bacaan Asas

Chisholm-Burns, M.A., et al. 2022. Pharmacotherapy Principles & Practice, 6th ed, New York : McGraw-Hill Medical.

DiPiro, J.T., Yee, G.C, Posey, L.M. 2023. Pharmacotherapy : A Pathophysiologic Approach, 12th ed, New York : McGraw-Hill Medical.

Brown T. & Shah S., 2013. Evidence-based clinical reasoning in medicine. Shelton: People's Medical Pub. House-USA.

Schwinghammer, T.L. 2023. Pharmacotherapy Casebook: A Patient-Focused Approach. 12th ed. New York: McGraw-Hill Medical.

Pagano, M.P. 2016. Health Communication for Health Care Professionals: An Applied Approach, 1st Ed. New York: Publisher Springer Publishing Co Inc.

NFNK6382 Amalan Klinikal Dalam Farmasi Komuniti

Pelajar akan dilatih bagi mengintegrasikan konsep farmasi klinikal dalam amalan farmasi komuniti. Perbincangan juga meliputi aplikasi konsep penjagaan farmaseutikal dalam perkhidmatan farmasi komuniti, kemahiran kaunseling, penyakit minor yang memerlukan konsultasi ahli farmasi dan pengurusan farmasi komuniti secara am.

Bacaan Asas

Beardsley, R.S., Skrabal, M.Z. & Kimberlin, C.L. 2019. Communication Skills in Pharmacy Practice. 7th ed. Philadephia: Lippincott Williams & Wilkins

Rutter, P. 2017. Community Pharmacy: Symptoms, diagnosis and treatment. 4th ed. London: Elsevier

da Costa F.A., van Mil J.W.F., Alvarez-Risco A. 2018. The Pharmacist Guide to Implementing Pharmaceutical Care. Switzerland: Springer

Schommer J.C., Olson A.W. 2019. Pharmacist Services. Switzerland: MDPI.

Pharmaceutical Services Division, Ministry of Health Malaysia. 2015. Community Pharmacy Benchmarking Guideline 2nd Edition: Malaysia.

Kursus Teras Program (Penyelidikan)

NFNK6392 Projek Penyelidikan Klinikal I

Projek Penyelidikan Klinikal I meliputi pencarian literatur, penyediaan dan pembentangan proposal penyelidikan, kajian rintis dan kutipan data awal. Tajuk-tajuk penyelidikan seharusnya mencakupi bidang praktis farmasi klinikal atau farmakoterapi. Hasil kajian diharap dapat memperbaiki amalan farmasi atau kaedah rawatan ubat semasa. Pelajar akan diselia oleh pensyarah yang dilantik.

NFNK6326 Projek Penyelidikan Klinikal II

Projek Penyelidikan Klinikal II meliputi pencarian literatur, pengumpulan data, analisis data, penulisan disertasi, pembentangan hasil kajian dan peperiksaan lisan. Tajuk-tajuk penyelidikan seharusnya mencakupi bidang praktis farmasi klinikal atau farmakoterapi. Hasil kajian diharap dapat memperbaiki amalan farmasi atau kaedah rawatan ubat semasa. Pelajar akan diselia oleh pensyarah yang dilantik. Pelajar juga perlu menghasilkan manuskrip untuk tujuan penerbitan.

Bacaan Asas

Greenhalgh, T. & Dijkstra, P. 2024. How to read a paper : The Basics of Evidence-based Medicine and Healthcare. 7th ed. West Sussex : Wiley-Blackwell/BMJ Books.

Walliman, Nicholas. 2020. Your Research Project. Designing and planning your work. 4th ed. SAGE Publications.

Gaya UKM. https://www.ukm.my/pusatsiswazah/wp-content/uploads/2021/02/2015-GayaUKM-BI-Final.pdf

Jurnal-jurnal semasa dan garis panduan klinikal yang berkaitan dengan bidang penyelidikan.

Kursus Teras Program (Klerksyip Wajib)

NFNK6413 Klerksyip Farmakoterapi Dalam Perubatan Dalaman I

Kursus ini mengandungi sesi rondaan wad, pengajaran tepi-katil, perbincangan dan pembentangan kes klinikal. Pelajar akan dilatihkan dalam pengurusan farmakoterapi untuk pesakit-pesakit di dalam wad. Pengetahuan teori baharu dan dari pencarian literatur terkini akan diaplikasikan dalam pengurusan pesakit secara berasaskan bukti. Pelajar juga akan dilatih untuk mengenalpasti dan menguruskan isu-isu penjagaan farmaseutikal yang berpotensi atau sebenarnya telah berlaku. Selain itu, kemahiran membentang kes-kes klinikal secara lisan dan penulisan juga akan dilatih. Kes klinikal yang dipilih akan meliputi masalah berkaitan kardiovaskular, endokrin, dermatologi, muskuloskeletal dan respiratori.

Bacaan Asas

DiPiro J.T., Talbert R.L., Yee G.C., Matzke G.R., Wells B.G., Posey L. 2020. Pharmacotherapy: A Pathophysiologic Approach. 11th ed. USA: McGraw-Hill Education.

Schwinghammer, T.L. 2017. Pharmacotherapy Casebook: A Patient-Focused Approach. 10th ed. New York: McGraw-Hill Medical.

Whittlesea C. and Hodson K. 2019. Clinical pharmacy and therapeutics. 6th ed. Oxford: Elsevier.

Zeind C.S. and Carvalho M.G. 2017. Applied therapeutics: The clinical use of drugs. 11th ed. Vancouver: Applied Therapeutics.

Jurnal-jurnal terkini – Annals of Pharmacotherapy, Archives of Internal Medicine, Pharmacotherapy, New England Journal of Medicine, The Lancet

NFNK6423 Klerksyip Farmakoterapi Dalam Perubatan Dalaman II

Kursus ini mengandungi sesi rondaan wad, pengajaran tepi-katil, perbincangan dan pembentangan kes klinikal. Pelajar akan dilatihkan dalam pengurusan farmakoterapi untuk pesakit-pesakit di dalam wad. Pengetahuan teori baharu dan dari pencarian literatur terkini akan diaplikasikan dalam pengurusan pesakit secara berasaskan bukti. Pelajar juga akan dilatih untuk mengenalpasti dan menguruskan isu-isu penjagaan farmaseutikal yang berpotensi atau sebenarnya telah berlaku. Selain itu, kemahiran membentang kes-kes klinikal secara lisan dan penulisan juga akan dilatih. Kes klinikal yang dipilih akan meliputi masalah berkaitan renal, gastrointestin, jangkitan, hematologi, dan neurologi.

Bacaan Asas

Arcangelo V.P. 2017. Pharmacotherapeutics for Advanced Practice: A Practical Approach. 4th Ed. Wolters Kluwer: Philadelphia.

Wells B.G. 2017. Pharmacotherapy handbook. 10th edition. McGraw-Hill Education USA.

Brown T. & Shah S. 2016. Evidence-based clinical reasoning in medicine. Shelton: People's Medical Pub. House-USA.

Koda-Kimble. 2012. Applied therapeutics : the clinical use of drugs. 10th Ed. Philadelphia : Wolters Kluwer/Lippincott Williams & Wilkins.

Pagano MP. 2016. Health Communication for Health Care Professionals : An Applied Approach, 1st Ed. New York: Publisher Springer Publishing Co Inc.

NFNK6433 Klerksyip Farmakoterapi Dalam Jagaan Kritikal

Kursus ini mengandungi sesi rondaan wad, pengajaran tepi-katil, perbincangan dan pembentangan kes klinikal. Pelajar akan dilatihkan dalam pengurusan farmakoterapi untuk pesakit-pesakit di dalam wad. Pengetahuan teori baharu dan dari pencarian literatur terkini akan diaplikasikan dalam pengurusan pesakit secara berasaskan bukti. Pelajar juga akan dilatih untuk mengenalpasti dan menguruskan isu-isu penjagaan farmaseutikal yang berpotensi atau sebenarnya telah berlaku. Selain itu, kemahiran membentang kes-kes klinikal secara lisan dan penulisan juga akan dilatih. Kes klinikal yang dipilih akan meliputi masalah berkaitan jangkitan, renjatan, kegagalan organ akut, sedasi dan pembiusan.

Bacaan Asas

Arcangelo V.P. 2017. Pharmacotherapeutics for Advanced Practice: A Practical Approach. 4th Ed. Wolters Kluwer: Philadelphia.

Wells B.G. 2017. Pharmacotherapy handbook. 10th edition. McGraw-Hill Education USA.

Brown T. & Shah S. 2016. Evidence-based clinical reasoning in medicine. Shelton: People's Medical Pub. House-USA.

Koda-Kimble. 2012. Applied therapeutics : the clinical use of drugs. 10th Ed. Philadelphia : Wolters Kluwer/Lippincott Williams & Wilkins.

Pagano MP. 2016. Health Communication for Health Care Professionals : An Applied Approach, 1st Ed. New York: Publisher Springer Publishing Co Inc.

NFNK6443 Klerksyip Farmakoterapi Dalam Pediatrik

Kursus ini mengandungi sesi rondaan wad, pengajaran tepi-katil, perbincangan dan pembentangan kes klinikal. Pelajar akan dilatihkan dalam pengurusan farmakoterapi untuk pesakit-pesakit di dalam wad. Pengetahuan teori baharu dan dari pencarian literatur terkini akan diaplikasikan dalam pengurusan pesakit secara berasaskan bukti. Pelajar juga akan dilatih untuk mengenalpasti dan menguruskan isu-isu penjagaan farmaseutikal yang berpotensi atau sebenarnya telah berlaku. Selain itu, kemahiran membentang kes-kes klinikal (secara lisan dan penulisan) juga akan dilatih. Kes klinikal yang dipilih akan meliputi masalah berkaitan perubatan dalaman dalam neonat, infan dan kanak-kanak.

Bacaan Asas

DiPiro J.T., Talbert R.L., Yee G.C., Matzke G.R., Wells B.G., Posey L. 2023. Pharmacotherapy: A Pathophysiologic Approach. 12th ed. USA: McGraw-Hill Education.

Whittlesea C. and Hodson K. 2019. Clinical pharmacy and therapeutics. 6th ed. Oxford: Elsevier.

Zeind C.S. and Carvalho M.G. 2023. Applied therapeutics: The clinical use of drugs. 12th ed. Vancouver: Applied Therapeutics.

Schwinghammer, T.L. 2023.. Pharmacotherapy Casebook: A Patient-Focused Approach. 12th ed. New York: McGraw-Hill Medical.

Jurnal-jurnal terkini – Annals of Pharmacotherapy, Archives of Internal Medicine, Pharmacotherapy, New England Journal of Medicine, The Lancet

Kursus Elektif Program (Klerksyip Elektif)

NFNK6512 Klerksyip Farmakoterapi dalam Obstetrik dan Ginekologi

Kursus ini mengandungi sesi rondaan wad, pengajaran tepi-katil, perbincangan dan pembentangan kes klinikal. Pelajar akan dilatihkan dalam pengurusan farmakoterapi untuk pesakit-pesakit di dalam wad. Pengetahuan teori baharu dan dari pencarian literatur terkini akan diaplikasikan dalam pengurusan pesakit secara berasaskan bukti. Pelajar juga akan dilatih untuk mengenalpasti dan menguruskan isu-isu penjagaan farmaseutikal yang berpotensi atau sebenarnya telah berlaku. Selain itu, kemahiran membentang kes-kes klinikal secara lisan dan penulisan juga akan dilatih. Kes klinikal yang dipilih akan meliputi isu berkaitan dengan bidang obstetrik dan ginekologi.

Bacaan Asas

DiPiro J.T., Talbert R.L., Yee G.C., Matzke G.R., Wells B.G., Posey L. 2020. Pharmacotherapy : A Pathophysiologic Approach. 11th ed. USA: McGraw-Hill Education.

Whittlesea C. and Hodson K. 2019. Clinical pharmacy and therapeutics. 6th ed. Oxford: Elsevier.

Zeind C.S. and Carvalho M.G. 2017. Applied therapeutics: The clinical use of drugs. 11th ed. Vancouver: Applied Therapeutics.

Schwinghammer, T.L. 2017. Pharmacotherapy Casebook: A Patient-Focused Approach. 10th ed. New York: McGraw-Hill Medical.

Jurnal-jurnal terkini – Annals of Pharmacotherapy, Archives of Internal Medicine, Pharmacotherapy, New England Journal of Medicine, The Lancet

NFNK6522 Klerksyip Farmakoterapi dalam Psikiatri

Kursus ini mengandungi sesi rondaan wad, pengajaran tepi-katil, perbincangan dan pembentangan kes klinikal. Pelajar akan dilatihkan dalam pengurusan farmakoterapi untuk pesakit-pesakit di dalam wad. Pengetahuan teori baharu dan dari pencarian literatur terkini akan diaplikasikan dalam pengurusan pesakit secara berasaskan bukti. Pelajar juga akan dilatih untuk mengenalpasti dan menguruskan isu-isu penjagaan farmaseutikal yang berpotensi atau sebenarnya telah berlaku. Selain itu, kemahiran membentang kes-kes klinikal secara lisan dan penulisan juga akan dilatih. Kes klinikal yang dipilih akan meliputi masalah berkaitan keresahan, skizofrenia, kemurungan dan gangguan bipolar.

Bacaan Asas

Wells, B.G., DiPiro, T.T., Schwinghammer, T.L., DiPiro, C.V. 2017. Pharmacotherapy handbook. 10th edition. McGraw-Hill Education USA

Martin C.P., Talbert, R.L. 2013. Pharmacotherapy bedside guide. McGraw-Hill Education USA.

DiPiro J.T., Talbert R.L., Yee G.C., Matzke G.R., Wells B.G., Posey L. 2020. Pharmacotherapy: A Pathophysiologic Approach. 11th ed. USA: McGraw-Hill Education.

Schwinghammer, T.L. 2017. Pharmacotherapy Casebook: A Patient-Focused Approach. 10th ed. New York: McGraw-Hill Medical.

Whittlesea C. and Hodson K. 2019. Clinical pharmacy and therapeutics. 6th ed. Oxford: Elsevier.

NFNK6532 Klerksyip Farmakokinetik Klinikal

Pelajar akan dilatihkan dalam pengurusan farmakoterapi untuk pesakit-pesakit di dalam wad. Pengetahuan teori dan dari pencarian literatur akan diaplikasikan dalam pengurusan pesakit secara berasaskan bukti. Pelajar juga akan dilatih untuk mengenalpasti dan menguruskan isu-isu penjagaan farmaseutikal yang berpotensi atau sebenarnya telah berlaku. Selain itu, kemahiran membentang kes-kes klinikal secara lisan dan penulisan juga akan dilatih. Kes klinikal yang dipilih akan meliputi masalah berkaitan farmakokinetik ubat seperti penyerapan, penyebaran dan penyingkiran yang terbatas.

Bacaan Asas

Beringer P. 2017. Winter's Basic clinical pharmacokinetics, 6th ed. Wolters Kluwer: Philadelphia.

Bauer L.A. 2014. Applied Clinical Pharmacokinetics, 3rd ed. McGraw-Hill Education. New York.

Wells B.G. 2017. Pharmacotherapy handbook. 10th edition. McGraw-Hill Education USA.

Brown T. & Shah S. 2016. Evidence-based clinical reasoning in medicine. Shelton: People's Medical Pub. House-USA.

Koda-Kimble. 2012. Applied therapeutics : the clinical use of drugs. 10th Ed. Philadelphia: Wolters Kluwer/Lippincott Williams & Wilkins, 2012

NFNK6542 Klerksyip Farmakoterapi dalam Onkologi dan Farmasi Nuklear

Kursus ini mengandungi sesi rondaan wad, pengajaran tepi-katil, perbincangan dan pembentangan kes klinikal. Pelajar akan dilatihkan dalam pengurusan farmakoterapi untuk pesakit-pesakit di dalam wad. Pengetahuan teori baharu dan dari pencarian literatur terkini akan diaplikasikan dalam pengurusan pesakit secara berasaskan bukti. Pelajar juga akan dilatih untuk mengenalpasti dan menguruskan isu-isu penjagaan farmaseutikal yang berpotensi atau sebenarnya telah berlaku. Selain itu, kemahiran membentang kes-kes klinikal secara lisan dan penulisan juga akan dilatih. Kes klinikal yang dipilih akan meliputi masalah berkaitan kanser dan farmasi nuklear.

Bacaan Asas

Arcangelo V.P. 2017. Pharmacotherapeutics for Advanced Practice: A Practical Approach. 4th Ed. Wolters Kluwer: Philadelphia.

Wells B.G. 2017. Pharmacotherapy handbook. 10th edition. McGraw-Hill Education USA.

Brown T. & Shah S. 2016. Evidence-based clinical reasoning in medicine, Shelton: People's Medical Pub. House-USA.

Koda-Kimble. 2012. Applied therapeutics : the clinical use of drugs. 10th Ed. Philadelphia: Wolters Kluwer/Lippincott Williams & Wilkins.

Pagano MP. 2016. Health Communication for Health Care Professionals : An Applied Approach, 1st Ed. New York: Publisher Springer Publishing Co Inc.

NFNK6552 Klerksyip Farmakoterapi dalam Surgeri dan Pemakanan Parenteral

Kursus ini mengandungi sesi rondaan wad, pengajaran tepi katil, pembentangan dan perbincangan kes klinikal. Pelajar akan dilatih dalam pengurusan farmakoterapi dan sokongan pemakanan parenteral untuk pesakit-pesakit di dalam wad. Pengetahuan teori baharu dan dari pencarian literatur terkini akan diaplikasikan dalam pengurusan pesakit secara berasaskan bukti. Pelajar juga akan dilatih untuk mengenalpasti dan menguruskan isu-isu penjagaan farmaseutikal yang berpotensi atau sebenarnya telah berlaku. Selain itu, kemahiran membentang kes-kes klinikal secara lisan dan penulisan juga akan dilatih. Kes klinikal yang dipilih akan meliputi masalah berkaitan gastrosus, genitourinari, ortopedik, dan neurologi. Kes juga akan merangkumi masalah keperluan pemakanan parenteral pada pesakit surgeri.

Bacaan Asas

Clinical Nutrition. 2020. N. E. P. Deutz. Elsevier. Volume 39. Hospital Pharmacy. 2020. Philadelphia, United States : Lippincott. Thousand Oaks, CA : Sage Publications. Volume 55.

Glynda Rees Doyle and Jodie Anita McCutcheon. 2015. Clinical Procedures for Safer Patient Care. Chapter 8. British Columbia BCcampus OpenEd..

DiPiro, J.T., et al. 2020. Pharmacotherapy : A Pathophysiologic Approach, 11th ed, New York : McGraw-Hill Medical.

Waldman, S.A. & Terzic, A. 2009. Pharmacology and Therapeutics : Principles to Practice, Philadelphia : Saunders/Elsevier.

Walker, R. & Whittlesea, C. 2011. Clinical pharmacy and Therapeutics, 5th ed, Edinburgh : Churchill Livingstone/Elsevier.

NFNK6562 Klerksyip Perkhidmatan Maklumat Ubat

Kursus ini melatih pelajar dalam proses klerksyip yang sistematik dan pengurusan kes klinikal yang berkesan. Topik-topik yang dibincangkan merangkumi sumber maklumat, pertanyaan maklumat ubat, proses penilaian literatur bagi menjawab pertanyaan maklumat ubat, cadangan dan saranan yang tepat berdasarkan maklumat berasaskan bukti, komunikasi profesional, kajian penggunaan ubat (MUR) dan pelaporan kesan advers ubat di penempatan farmasi. Selain itu, pelajar akan dilatih kemahiran membentang kes maklumat ubat secara lisan dan juga penulisan.

Bacaan Asas

Malone P., Meghan M., Park S. 2018. Drug Information: A guide for pharmacists. 6th Edition. McGraw-Hill Education.

Gabay, M. 2015. The Clinical Practice of Drug Information. Jones & Bartlett Learning

Kier K. & Goldwire M. 2018. Drug Information Resources and Literature Retrieval. 7th Edition, ACCP's Pharmacotherapy Self-Assessment Program.

Schwinghammer, T.L. 2017. Pharmacotherapy Casebook: A Patient-Focused Approach. 10th ed. New York: McGraw-Hill Medical.

Pangkalan data Ovid MEDLINE, PubMed dan Cochrane.

NFNK6572 Klerksyip Pemantauan Pengurusan Ubat Pesakit

Kursus ini mengandungi sesi perjumpaan bersama pesakit untuk menjalankan pemantauan pengurusan ubat-ubatan. Ia melibatkan sangkutan klinikal, perbincangan dan pembentangan kes. Pelajar akan dilatih untuk menjalankan pemantauan pengurusan ubat pesakit melalui penilaian maklumat pesakit, pentaksiran pengunaan ubat dan memberi cadangan penyelesaian berkaitan isu penggunaan ubat pesakit seperti pendidikan pesakit dan lain-lain. Selain itu, kemahiran membentang kes klinikal secara lisan dan penulisan juga akan dilatih.

Bacaan Asas

DiPiro J.T., Talbert R.L., Yee G.C., Matzke G.R., Wells B.G., Posey L. 2020. Pharmacotherapy: A Pathophysiologic Approach. 11th ed. USA: McGraw-Hill Education.

Schwinghammer, T.L. 2017. Pharmacotherapy Casebook: A Patient-Focused Approach. 10th ed. New York: McGraw-Hill Medical.

Whittlesea C. and Hodson K. 2019. Clinical pharmacy and therapeutics. 6th ed. Oxford: Elsevier.

Zeind C.S. and Carvalho M.G. 2017. Applied therapeutics: The clinical use of drugs. 11th ed. Vancouver: Applied Therapeutics.

Jurnal-jurnal terkini – Annals of Pharmacotherapy, Archives of Internal Medicine, Pharmacotherapy, New England Journal of Medicine, The Lancet

Program Sarjana Sains (Analisis Farmaseutikal)

Pengenalan

Program ini bertujuan untuk melahirkan tenaga mahir dalam bidang analisis farmaseutikal sejajar dengan perkembangan industri farmaseutikal dan herba di negara ini. Program Sarjana Sains (Analisis Farmaseutikal) ini dapat membantu menghasilkan graduan yang berkemahiran yang akan memenuhi keperluan di sektor awam dan swasta dengan memberi pengetahuan dan kemahiran yang khusus dalam bidang analisis farmaseutikal.

Objektif

Objektif Pendidikan Program (OPP) adalah untuk menghasilkan:

OPP1 Sarjana yang menguasai pengetahuan lanjutan serta kemahiran praktikal, digital dan numerasi dalam bidang berkaitan analisis farmaseutikal selaras dengan keperluan profesion dan perkembangan industri.

OPP2 Sarjana yang mempamerkan kemahiran kepimpinan, autonomi, kebertanggungjawaban dan komunikasi berkesan dengan pelbagai pihak berkepentingan.

OPP3 Sarjana yang memiliki kemahiran pembelajaran sepanjang hayat serta pemikiran keusahawanan dalam menyelesaikan cabaran berkaitan bidang analisis farmaseutikal.

OPP4 Sarjana yang beretika, berintegriti dan profesional dalam melaksanakan tanggungjawab dalam bidang berkaitan analisis farmaseutikal.

Jumlah Unit

Jumlah unit wajib yang ditetapkan bagi program ini ialah 40 unit.

HASIL PEMBELAJARAN PROGRAM SARJANA SAINS (ANALISIS FARMASEUTIKAL)

Program Sarjana Sains (Analisis Farmaseutikal) bertujuan melahirkan graduan yang:

HPP1 Menguasai pengetahuan lanjutan berkaitan bidang analisis farmaseutikal.

HPP2 Menganalisis permasalahan kompleks dalam bidang berkaitan analisis farmaseutikal secara kritikal dan kreatif.

HPP3 Mengaplikasi kemahiran praktikal untuk menangani isu dalam bidang berkaitan analisis farmaseutikal.

HPP4 Menunjukkan kerjasama dengan individu dalam komuniti pembelajaran yang pelbagai.

HPP5 Mempamerkan kemahiran berkomunikasi secara berkesan dengan komuniti saintifik dan khalayak umum dalam bidang berkaitan analisis farmaseutikal.

HPP6 Mengaplikasi teknologi digital dan teknik analisis yang sesuai untuk penyelesaian masalah dalam bidang berkaitan analisis farmaseutikal.

HPP7 Menggunakan kemahiran numerik, grafik, dan bantuan visual untuk penyelesaian masalah dalam bidang berkaitan analisis farmaseutikal.

HPP8 Mempamerkan kualiti kepimpinan, intelektual, berpasukan, autonomi dan kebertanggungjawaban dalam pelaksanaan tugasan.

HPP9 Mempamerkan komitmen terhadap pembelajaran sepanjang hayat dan pembangunan diri.

HPP10 Mempamerkan ciri-ciri keusahawanan berkaitan bidang analisis farmaseutikal.

HPP11 Mematuhi amalan undang-undang, etika, profesional dan lestari.

Kurikulum Program Sarjana Sains (Analisis Farmaseutikal)

Kursus Teras Program

Secara Sepenuh Masa:

Tempoh lazim bagi pengajian sepenuh masa ialah satu (1) tahun atau dua (2) semester. Senarai kursus yang ditawarkan bagi setiap semester adalah seperti berikut:

Semester I

Kod	Tajuk Kursus	Unit
NFNA6713	Jaminan Kualiti Farmaseutikal	3
NFNA6813	Reka Bentuk Dosej Farmaseutikal	3
NFNA6913	Teknologi Biofarmaseutikal	3
NFNA6612	Kaedah Penyelidikan & Keselamatan Di Tempat Kerja	2
NFNA6712	Statistik dan Kemometrik untuk Analisis Farmaseutikal	2
NFNA6812	Projek Penyelidikan I	2
	Jumlah kredit	**18**

Semester II

Kod	Tajuk Kursus	Unit
NFNA6623	Kaedah Pemisahan Farmaseutikal	3
NFNA6622	Kawalan Kualiti Farmaseutikal	2
NFNA6722	Farmaseutikal Halal	2
NFNA6822	Analisis Herba	2
NFNA6723	Biokesetaraan	3
NFNA6626	Projek Penyelidikan II	6
	Jumlah kredit	**22**

Secara Separuh Masa:

Tempoh lazim bagi pengajian separuh masa ialah dua (2) tahun atau empat (4) semester. Cadangan pendaftaran kursus adalah seperti berikut:

Semester I

Kod	**Tajuk Kursus**	**Unit**
NFNA6713	Jaminan Kualiti Farmaseutikal	3
NFNA6612	Kaedah Penyelidikan & Keselamatan Di Tempat Kerja	2
NFNA6812	Projek Penyelidikan I	2
	Jumlah kredit	**10**

Semester II

Kod	**Tajuk Kursus**	**Unit**
NFNA6622	Kawalan Kualiti Farmaseutikal	2
NFNA6723	Biokesetaraan	3
	Jumlah kredit	**9**

Semester III

Kod	**Tajuk Kursus**	**Unit**
NFNA6813	Reka Bentuk Dosej Farmaseutikal	3
NFNA6913	Teknologi Biofarmaseutikal	3
NFNA6712	Statistik dan Kemometrik untuk Analisis Farmaseutikal	2
	Jumlah kredit	**8**

Semester IV

Kod	**Tajuk Kursus**	**Unit**
NFNA6623	Kaedah Pemisahan Farmaseutikal	3
NFNA6722	Farmaseutikal Halal	2
NFNA6822	Analisis Herba	2
NFNA6626	Projek Penyelidikan II	6
	Jumlah kredit	**13**

Kursus Wajib Universiti

(a) Untuk calon luar negara yang tidak mempunyai pengetahuan dan kemahiran asas dalam Bahasa Melayu atau Bahasa Melayu bukan bahasa utama negara pelajar (bahasa kebangsaan atau bahasa rasmi):

Kod	**Tajuk Kursus**	**Unit**
LMCM1083	Bahasa Melayu Komunikasi Antarabangsa	3

(b) Untuk calon dari Singapura, Brunei Darussalam, Indonesia dan Thailand bahagian Selatan:

Kod	**Tajuk Kursus**	**Unit**
LMCM1093	Bahasa Melayu Untuk Pelajar Nusantara	3

Sinopsis Kursus Program Sarjana Sains (Analisis Farmaseutikal)

Kursus Teras Program

NFNA6612 Kaedah Penyelidikan & Keselamatan Di Tempat Kerja
Kursus ini bertujuan memperkenalkan asas penyelidikan dan akta keselamatan dan keselamatan pekerja (OSHA). Perbincangan selanjutnya meliputi menguasai pemahaman dalam melakukan tinjauan literatur, penulisan cadangan penyelidikan dan menjalankan projek penyelidikan secara matang serta mengaplikasi aspek-aspek keselamatan dan kesihatan pelajar semasa menjalankan penyelidikan yang berkaitan. Di antara tajuk yang dibincangkan termasuklah peraturan-peraturan mengenai bahan kimia berbahaya, pengendalian, penyimpanan dan pelupusan bahan kimia berbahaya serta prosedur keselamatan dalam makmal.

Bacaan Asas

Rozmi, I. 2015. Metodologi Penyelidikan Teori dan Praktis. Bangi: Universiti Kebangsaan Malaysia.

Lebrun, L.L. 2011. Scientific writing: A reader and writer's guide. New Jersey: World Scientific.

Goetsch, D.L. 2015. Occupational Safety and Health for Technologists, Engineer & Managers. 7th Edition. : New Jersey: Prentice Hall.

Peraturan Keselamatan Ditempat Kerja Universiti Kebangsaan Malaysia. 2005. Bangi: Universiti Kebangsaan Malaysia.

Occupational Safety and Health Act (OSHA) and Regulations. 2005. Malaysia: MDC Publishers Sdn Bhd.

NFNA6613 Penemuan dan Pembangunan Dadah
Kursus ini merangkumi prinsip asas dan strategi dalam penemuan dadah baharu yang dibangunkan untuk dipasarkan termasuk pembangunan dadah daripada hasil semulajadi. Pelajar juga akan diberi pendedahan mengenai sifat fizikal/kimia dadah, cara pemberian ubat, kepentingan bahan dan formulasi dadah bagi penyerapan dan pengedarannya secara *in vivo* ke tapak tindakan.

Bacaan Asas

Nogrady, T. & Weaver, D.F. 2005. Medicinal Chemistry: A Molecular and Biochemical Approach. Ed. Ke-3. United Kingdom: Oxford University Press.

Patrick, G.L. 2017. An Introduction to Medicinal Chemistry. Ed. Ke-6. United Kingdom: Oxford University Press.

Cairns, D. 2012. Essentials of Pharmaceutical Chemistry. London: Pharmaceutical Press.

Shargel, L. & Yu, A. B. C. 2016. *Applied Biopharmaceutics and Pharmacokinetics*. Ed. Ke-7. United States of America: McGraw Hill Education.

Florence, A. T. & Atwood, D. 2015. *Physicochemical Principles of Pharmacy*. Ed. Ke-5. London: Pharmaceutical Press.

NFNA6622 Kawalan Kualiti Farmaseutikal

Kursus ini mengandungi sesi kuliah, tutoran, amali dan bengkel. Kursus bertujuan memberi pelajar pengetahuan dan kemahiran dalam pelbagai aspek yang berkaitan kawalan kualiti dadah dan farmaseutikal. Penekanan diberi kepada teknik-teknik asas dan kaedah-kaedah instrumentasi moden yang digunakan dalam analisis dadah dalam bahan mentah, formulasi dan bendalir fisiologi, kaedah penyampelan, kawalan bahan mentah dan keluaran siap menurut farmakopoeia rasmi dan piawai lain, kawalan dalam proses ke atas pelbagai bentuk dos, kajian kestabilan dan pengujian, pemantauan dan kawalan persekitaran dan kawalan kualiti statistik. Sesi amali membolehkan pelajar mengaplikasi kaedah-kaedah yang sesuai untuk pemiawaian, analisis dan dan kawalan kualiti ke atas bahan mentah dan keluaran siap farmaseutikal menurut piawai yang telah ditetapkan.

Bacaan Asas

Graham P. Bunn, 2019. Good Manufacturing Practices for Pharmaceuticals, 7th Edition. US: Drugs and the Pharmaceutical Sciences.

David G. Watson, 2016. Pharmaceutical Analysis : A Textbook for Pharmacy Students and Pharmaceutical Chemists, 4th Revised Edition, London: Elsevier Health Sciences.

PIC/S, January 2017. Guide to Good Manufacturing Practice for Medicinal Products, PE 009-8.

Ohannesin, L & Streeter, A.J. 2007. Handbook of Pharmaceutical Analysis. New York: Marcel Dekker.

British Pharmacopoeial Commission 2018. British Pharmacopoeia 2018. London. The Stationary Office United States Pharmacopeial Convention 2018.

United States Pharmacopeia-National Formulary (USP 32-NF 27). Rockville.

NFNA6623 Kaedah Pemisahan Farmaseutikal

Kursus ini mendedahkan pemahaman yang mendalam kepada pelajar terhadap teori dan aplikasi teknik kaedah pemisahan serta mempunyai keupayaan untuk memilih teknik dan kaedah analisis yang bersesuaian dan mengaplikasi pengetahuan dalam mencari penyelesaian yang praktikal. Teknik yang dipelajari termasuk aplikasi kaedah kromatografi cecair tekanan tinggi, kromatografi gas, kromatografi cecair superkritikal, elektroforesis, kromatografi gas-jisim spektrofotometri dan kromatografi cecair-jisim spektrofotometri dalam analisis bahan dan produk farmaseutikal.

Bacaan Asas

Beckett, A.H. & Stenlake, J.B. 2005. Practical Pharmaceutical Chemistry. Part 2. UK: Athlone Press.

British Pharmacopoeia. 2018. London: British Pharmacopoeia Commission Secretariat of the Medicines and Healthcare Products Regulatory Agency.

Steen, H.H., Stig, P. & Knut E. R. 2012. Introduction to Pharmaceutical Chemical Analysis, Wiley.

Watson, D.G. 2012. Pharmaceutical Analysis: A Textbook for Pharmacy Students and Pharmaceutical Chemists. Edinburgh: Elsevier Churchill Livingstone.

NFNA6624 Kaedah Spektroskopi dalam Elusidasi Struktur

Setelah menghadiri kursus ini, pelajar seharusnya mampu menguasai pemahaman yang matang dalam teori, aplikasi dan praktikal yang berkaitan dengan teknik spektroskopi lanjutan termasuk prinsip, peralatan, pentafsiran data dan kegunaannya dalam analisis farmaseutikal. Pelajar juga seharusnya mempunyai keupayaan untuk memilih teknik dan kaedah analisis yang bersesuaian dan mengaplikasi pengetahuan dalam membuat penyelesaian yang praktikal. Teknik spektroskopi yang akan dipelajari adalah spektroskopi ultralembayung dan nampak, pendarfluor, penyerapan atom, pemancaran atom, inframerah, Raman, resonans magnet nukleus dan spektroskopi jisim. Pelajar-pelajar juga akan mempunyai pengetahuan yang mendalam tentang kegunaan gabungan kaedah spektroskopi bagi mengelusidasi struktur sebatian dalam penemuan dadah dan analisis farmaseutikal dalam pembangunan dan kawalan kualiti dadah.

Bacaan Asas

Beckett, A.H. & Stenlake, J.B. 2005. Practical Pharmaceutical Chemistry. Part 2. UK: Athlone Press.

British Pharmacopoeia. 2018. London: British Pharmacopoeia Commission Secretariat of the Medicines and Healthcare Products Regulatory Agency.

Pavia, D.L., Lampman, G.M. & Kriz, G.S. Vyvyan, J.A. 2015. Introduction to Spectroscopy. USA: Cengage Learning.

Siddiqui, A. A. 2011. Pharmaceutical Analysis. New Delhi: CBS Publishers.

Watson, D.G. 2012. Pharmaceutical Analysis: A Textbook for Pharmacy Students and Pharmaceutical Chemists. Edinburgh: Elsevier Churchill Livingstone.

NFNA6712 Statistik dan Kemometrik untuk Analisis Farmaseutikal

Kursus ini bertujuan mendedahkan pelajar kepada teori dan aplikasi teknik analisis statistik kimia farmaseutikal, berupaya untuk memilih kaedah yang bersesuaian dan mengaplikasi pengetahuan dalam menyelesaikan masalah berkaitan statistik dan kemometrik. Teknik yang dipelajari termasuk aplikasi statistik (soalan dan hipotesis penyelidikan, reka bentuk penyelidikan, bias, perancu, perambangan, pengiraan saiz sampel, statistik deskriptif dan statistik inferens) dan analisis data multivariat (analisis komponen utama (PCA), analisis gugusan, pengkelasan dan regresi multivariat). Latihan penggunaan perisian komputer akan dijalankan bagi analisis statistik dan data multivariat menggunakan SPSS dan The Unscrambler ® .

Bacaan Asas

Dretzke, BJ. 2013. Statistics with Microsoft Excel. Boston: Pearson.

Luna, AS (ed). 2017. Chemometrics: methods, applications and new research. UK: Nova Science Pub Inc.

Montgomery, DC. 2013. Statistical Quality Control: A Modern Introduction. 7th Ed.

Wiley Sharif, S. 2018. Statistics for Nonstatisticians: Basic Guide to SPSS. Malaysia.

Wehrens, R. 2011. Chemometrics with R: Multivariate Data Analysis in the Natural Sciences and Life Sciences. Berlin: Springer.

NFNA6713 Jaminan Kualiti Farmaseutikal

Kursus ini bertujuan memberikan pengetahuan dan kefahaman kepada pelajar berhubung keperluan-keperluan spesifik berkaitan jaminan kualiti dan peraturan-peraturan yang berkaitan dalam industri farmaseutikal dan industri lain yang berkaitan. Kuliah memberi penekanan kepada prinsip jaminan kualiti, dokumentasi dan rekod, prinsip-prinsip dan aplikasi garis panduan Amalan Perkilangan Baik (GMP), Amalan Makmal Baik (GLP) dan Amalan Klinikal Baik (GCP) serta keperluan-keperluan regulatori untuk menjamin kualiti dalam pengeluaran farmaseutikal dan industri berkaitan. Lawatan industri dan sesi audit dapat mengukuhkan pengetahuan dan kemahiran dengan melihat kes-kes sebenar sistem pengawalan GMP dan GLP. Kursus ini memberikan pendedahan dari aspek pengetahuan teori dan kemahiran dalam pelbagai aplikasi jaminan kualiti.

Bacaan Asas

Graham P. Bunn, 2019. Good Manufacturing Practices for Pharmaceuticals, 7th Edition. US: Drugs and the Pharmaceutical Sciences.

PIC/S, January 2017. Guide to Good Manufacturing Practice for Medicinal Products, PE 009-8.

WHO, 2004. Quality Assurance of Pharmaceuticals, A Compendium of guidelines and related materials, Volume 2, Geneva. British Pharmacopoeial Commission 2018.

British Pharmacopoeia 2018. London. The Stationary Office United States Pharmacopeial Convention 2018.

United States Pharmacopeia-National Formulary (USP 32-NF 27). Rockville.

NFNA6722 Farmaseutikal Halal

Industri halal sedang berkembang pesat sejajar dengan permintaan pengguna yang tinggi di serata dunia. Bermula dengan sektor makanan, konsep halal telah digunapakai di dalam beberapa sektor lain seperti perbankan, perhotelan, fesyen, kosmetik, dan farmaseutikal. Prinsip halal bukan lagi hanya dipandang sebagai keperluan agama tetapi telah diterima sebagai salah satu jaminan kualiti perkhidmatan - atau produk di peringkat antarabangsa. Konsep halal dan toyyiban menekankan keperluan melengkapi dan menyempurnakan intipati dari -piawai asas atau ambang minimum (halal) iaitu tentang kesihatan, keselamatan, sanitasi, khasiat, pendedahan risiko, alam sekitar, aspek berkaitan sosial dan lain-lain mengikut keperluan situasi atau aplikasi. Malaysia telah memberi komitmen dan kesungguhan dalam membangunkan industri halal selaras dengan aspirasi negara untuk menjadi juara hub halal global. Sejajar ini, industri halal farmaseutikal juga telah berkembang dan konsep halal telah diambil kira di dalam perkhidmatan farmasi. Sehubungan itu, pelajar perlu dilengkapi dengan kefahaman dan kemahiran berkaitan topik ini.

Objektif utama kursus ini adalah supaya pelajar dapat memahami dan seterusnya menjelaskan penggunaan konsep halal dan toyyiban di dalam bidang farmaseutikal terutamanya bidang amalan, perkilangan dan penyelidikan. Pelajar juga akan dijelaskan kepada permasalahan dan stigma negatif berkenan konsep ini. Kursus akan disampaikan melalui kuliah, perbincangan dalam kelas dan kajian kes yang akan dikongsi oleh wakil-wakil industri. Kursus ini turut memberi fokus kepada pembelajaran melalui pengalaman di mana para pelajar akan menjalankan kajian penyelidikan berkaitan topik halal farmaseutikal secara berkumpulan dan menganjurkan satu seminar berkaitan kesedaran mengenai halal farmaseutikal.

Bacaan Asas

Halal Pharmaceuticals- General Guidelines MS2424:2019, Department of Standards Malaysia.

JAKIM, Guidelines for Halal Assurance Management System, 2012, Kuala Lumpur.

Kausar A. 2015. Manufacturing of Halal Pharmaceuticals. 1st ed. IIUM Press, Kuala Lumpur.

Panduan penggunaan ubat-ubatan yang mengandungi unsur tidak halal kepada pesakit muslim di Kementerian Kesihatan Malaysia, KKM 2018.

Muhammad Mustaqim MZ, Abd Hamid AM, Arif Fahmi MY. The Use of Forbidden Materials in Medicinal Products: An Islamic Perspective. Middle-East J. Sci. Res., 16 (Approaches of Halal and Thoyyib for Society, Wellness and Health): 05-10, 2013.

NFNA6723 Biokesetaraan

Kursus ini mengandungi sesi kuliah, tutoran, kajian kes dan pembelajaran berasaskan masalah, untuk menganalisis dan mengkaji secara kritis atas laporan teknik validasi, bioanalisis dan klinikal yang berkaitan dengan biokesetaraan. Pelajar yang mengikuti kursus ini seharusnya boleh memberi penjelasan terperinci tentang ujian pelarutan in vitro dan in vivo. Setelah menamatkan kursus ini, pelajar harus mempunyai pemahaman yang baik mengenai pelbagai aspek berkenaan garis panduan biokesetaraan kebangsaan dan antarabangsa yang terkini. Di samping itu, pelajar harus dapat melakukan pengiraan farmakokinetik dan statistik, dengan juga keupayaan untuk menyediakan beberapa protokol pusat biokesetaraan yang relevan.

Bacaan Asas

Asean guideline for the conduct of bioequivalence studies. (March 2015; 43 pages)

GuideLines OnDrug Bioequivalence Requirements In the GCC Countries. ICH guidelines. (2010; 56 pages)

WHO Key Resources on Bioequivalence. https://extranet.who.int/prequal/content/bioequivalence-0

Guidance for Organizations Performing in Vivo Bioequivalence Studies. WHO Technical Report Series, No. 996, 2016, Annex 9 (2016; 42 pages).

General Notes on Biopharmaceutics Classification System (BCS)-based Biowaiver Applications. WHO Prequalification Team Guidance Documents. 22 March 2019.

NFNA6813 Reka Bentuk Dosej Farmaseutikal

Kursus ini terdiri daripada dua bahagian utama iaitu bahagian radiofarmaseutikal yang menekankan penggunaan, pengiraan dos dan kawalan kualiti produk radiofarmaseutikal dan bahagian reka bentuk dos yang merangkumi pelbagai jenis reka bentuk dos farmaseutikal, aspek preformulasi, dan pembungkusan. Penekanan diberikan pada fasa prefomulasi sediaan farmaseutikal dan aktiviti yang melibatkan pemprosesan pelbagai bentuk dos farmaseutikal seperti tablet, kapsul, ampaian, emulsi, gel, sediaan steril dan sebagainya.

Bacaan Asas

Ansel, H. C., Popovich, N. G. & Allen, L. V. Jr. 2010. Pharmaceutical Dosage Forms and Drug Delivery Systems. Ed. Ke-9. Baltimore: Lippincott Williams and Wilkins. Aulton, M.E & Taylor, K (eds.). 2013.

Aulton's Pharmaceutics: The Design and Manufacture of Medicines, 4th edition. Edinburgh: Churchill Livingstone.

Gibson, M., 2009. Pharmaceutical Preformulation and Formulation. Ed. Ke-2. New York: Informa Healthcare.

Anthony Theobold (editor). 2010. Sampson's Textbook of Radiopharmacy. 4th ed. London: Pharmaceutical Press.

British Pharmacopoeia. 2019. London: Royal Pharmaceutical Society of Great Britain.

NFNA6822 Analisis Herba

Kursus ini bertujuan mendedahkan pelajar kepada analisis ubat-ubatan dari sumber semula jadi. Topik pengajian merangkumi fitokimia dan kawalan kualiti dadah mentah (crude drug), sediaan dan produk herba; termasuk peraturan, proses pembuatan dan pemiawaian produk herba, dan pelbagai ujian kawalan kualiti, keselamatan dan keberkesanan.

Bacaan Asas

British Pharmacopoeia. 2019. London: British Pharmacopoeia Commission Secretariat of the Medicines and Healthcare Products Regulatory Agency.

Guidelines on Good Manufacturing Practice for Traditional Medicines and Health Supplements. 2008. Kuala Lumpur: Ministry of Health, Malaysia.

Heinrich, M.; Barnes, J.; Gibbons, S. & Williamson, E.M. 2012. Fundamentals of Pharmacognosy & Phytotherapy. Edisi ke-2. London : Churchill Livingstone.

List P.H. & Schmidt P.C. 1990. Phytopharmaceutical Technology. Boca Raton: CRC Press.

WHO. 2011. Quality control methods for herbal materials. Geneva: World Health Organization.

NFNA6913 Teknologi Biofarmaseutikal

Kursus ini terdiri daripada kuliah dan pembelajaran sendiri. Pelajar akan disampaikan dengan gambaran yang seimbang mengenai industri biofarmaseutikal, bukan sahaja dari segi mengkategorikan produk yang ada sekarang, tetapi juga menggambarkan bagaimana ubat-ubatan ini dihasilkan dan dibawa ke pasaran. Penekanan utama diletakkan terhadap agen terapeutik berasaskan polipeptida serta potensi ubat berasaskan asid nukleik. Kursus ini memberi pandangan tentang perkembangan terkini dalam sektor ini, memberikan fokus ke atas penghasilan dan kelulusan produk komersial, termasuk bahagian-bahagian baru yang substansial memperincikan teknik-teknik yang digunakan untuk ujian biofarmaseutikal, cabaran kajian klinikal, dan kemajuan dalam genomik dan proteomik mungkin akan memberi kesan kepada pembangunan dadah (bio) farmaseutikal.

Bacaan Asas

Katzung, B.G., Masters, S.B. and Trevor, A.J. (2009) Basic and Clinical Pharmacology. 11th Edition, McGraw-Hill Medical, New York.

Walsh, G. (2013) Biopharmaceuticals: Biochemistry and Biotechnology. 2nd Edition, Wiley-Blackwell, New York.

Jameel, F., Hershenson, S., Khan, M.A., Martin-Moe, S. (2015) Quality by Design for Biopharmaceutical Drug Product Development, Springer-Verlag New York.

Jorgensen, L. and Nielsen, H. M. (2009) Delivery Technologies for Biopharmaceuticals: Peptides, Proteins, Nucleic Acids and Vaccines , Johm Wilwy & Sons Ltd, New York.

Pharmaceutical Engineering Guides for New and Renovated Facilities: Biopharmaceutical Manufacturing Facilities by ISPE Headquarters (2004).

NFNA6812 Projek Penyelidikan I

Kursus ini melatih pelajar untuk merangka dan menjalankan projek penyelidikan, menganalisa dan mentafsir data serta penulisan kertas projek. Jenis penyelidikan yang dilakukan adalah kajian makmal dalam bidang analisis farmaseutikal. Pelajar akan menjalankan projek penyelidikan selama dua semester di bawah seliaan pensyarah. Aktiviti kursus pada semester pertama termasuklah pembentangan cadangan penyelidikan dan kerja makmal.

Bacaan Asas

Panduan Penulisan Tesis Gaya UKM 2015. Edisi Semak. 3, Bangi: Pusat Pengajian Siswazah, Universiti Kabangsaan Malaysia.

Rowe, P. 2016. Essential Statistics for the Pharmaceutical Sciences. Oxford: John Wiley & Sons.

Sankalp Yadav, G. 2016. Plagiarism - A Serious Scientific Misconduct. International Journal of Health Sciences and Research (IJHSR).

Journals related to the field of research.

Books related to the field of research.

NFNA6626 Projek Penyelidikan II

Kursus ini mendedahkan pelajar kepada prinsip-prinsip merekabentuk dan menjalankan projek penyelidikan, mentafsir dan menganalisa data dan menulis kertas projek. Projek penyelidikan adalah berasaskan makmal berkaitan dengan analisis farmaseutikal. Pelajar akan menjalankan projek penyelidikan di bawah penyeliaan pensyarah. Aktiviti kursus termasuk penulisan kertas projek, pembentangan keputusan dan peperiksaan lisan.

Bacaan Asas

Panduan Penulisan Tesis Gaya UKM 2015. Edisi Semak. 3, Bangi: Pusat Pengajian Siswazah, Universiti Kabangsaan Malaysia.

Rowe, P. 2016. Essential Statistics for the Pharmaceutical Sciences. Oxford: John Wiley & Sons.

Sankalp Yadav, G. 2016. Plagiarism - A Serious Scientific Misconduct. International Journal of Health Sciences and Research (IJHSR).

Journals related to the field of research.

Books related to the field of research.

Graduate Studies Programmes

Faculty of Pharmacy
Academic Session 2025 – 2026

Postgraduate Study Programmes (Research Mode) Faculty of Pharmacy

Introduction

Research-mode programmes offered by the Faculty of Pharmacy place emphasis on multidisciplinary research and product development. The two levels of programmes are Master of Science and Doctor of Philosophy. Research topics offered are divided into three main areas: Pharmaceutical Chemistry & Pharmacology, Pharmaceutical and Clinical Pharmacy, and Pharmacy Practice.

Programmes Education Objectives (PEO) of Graduate Studies

1. The Master of Science programme aims to produce:

    PEO 1 Scholars who master advanced knowledge, as well as practical, digital and numerical skills in pharmacy-related fields, in line with the needs of the profession and industry developments.

    PEO2 Scholars who demonstrate leadership, autonomy, accountability, and skills in communicating effectively with various stakeholders.

    PEO3 Scholars who possess lifelong learning skills and an entrepreneurial mindset for solving challenges in the field of pharmacy.

    PEO4 Scholars who uphold ethics, integrity, and professionalism in carrying out responsibilities in pharmacy-related fields.

2. The Doctor of Philosophy programme aims to produce:

    PEO 1 Pharmacy experts who are able to synthesise new ideas and integrate knowledge with practical, digital, and numerical skills to enhance the profession and drive industry developments.

    PEO2 Pharmacy experts who demonstrate thought leadership, professional autonomy, strategic accountability, and effective communication with various stakeholders.

PEO3 Pharmacy experts who apply lifelong learning and an entrepreneurial mindset to generate innovative solutions for tackling challenges.

PEO4 Pharmacy experts who uphold ethics, integrity, and professionalism in leading research projects.

PROGRAMME LEARNING OUTCOMES (PLOs) FOR MASTER OF SCIENCE AND DOCTOR OF PHILOSOPHY PROGRAMMES

Master of Science

The Master of Science programme aims to produce graduates who are able to:

PLO1 Master advanced knowledge related to the field of pharmacy.

PLO2 Analyse complex problems critically and creatively in pharmacy-related fields.

PLO3 Conduct research with practical skills to address issues in pharmacy-related fields.

PLO4 Demonstrate collaboration with individuals in diverse learning communities.

PLO5 Demonstrate skills in communicating effectively with both the scientific community and the general public in pharmacy-related fields.

PLO6 Apply appropriate digital technologies and analytical techniques to address problems in pharmacy-related fields.

PLO7 Utilise numerical skills, graphics, and visual aids to solve problems in pharmacy-related fields.

PLO8 Demonstrate leadership, intellectual qualities, teamwork, autonomy, and accountability in executing tasks.

PLO9 Demonstrate a commitment to lifelong learning and self-development.

PLO10 Demonstrate entrepreneurial qualities relevant to the field of pharmacy.

PLO11 Conduct research in compliance with legal, ethical, professional, and sustainability standards.

Doctor of Philosophy

The Doctor of Philosophy programme aims to produce graduates who are able to:

PLO1 Integrate advanced knowledge and prior research to generate new discoveries in pharmacy-related fields.

PLO2 Synthesise information to solve complex problems critically, creatively, and innovatively in pharmacy- related fields.

PLO3 Conduct research with practical skills, independence, care, a systematic approach, and minimal supervision.

PLO4 Demonstrate collaboration within diverse research teams and professional communities.

PLO5 Demonstrate skills in communicating research and findings effectively to both the scientific community and the general public.

PLO6 Apply digital technologies and analytical approaches to advance knowledge in pharmacy-related fields.

PLO7 Utilise numerical skills and techniques for visualising complex data to solve problems in related fields and disseminate research findings.

PLO8 Demonstrate intellectual leadership, accountability, professionalism, and the ability to make strategic decisions.

PLO9 Practising lifelong learning to enhance knowledge and professional skills.

PLO10 Integrate an entrepreneurial mindset into research design and innovation in pharmacy- related fields.

PLO11 Conduct research in compliance with legal, ethical, professional, and sustainability standards.

Types of Programmes

Master of Science

The Master of Science programme offered is a research study which requires candidates to write a dissertation not exceeding 60,000 words. Candidates also should pass their viva voce examination and meet the requirements for the award of Master of Science (Pharmacy) Degree which is publishing at least ONE (1) manuscript which is indexed by SCOPUS/ ISI.

For full-time studies, the typical period is two (2) years, and the maximum period is three (3) years; for part-time studies, the typical period is three (3) years, and the maximum period is four (4) years.

Doctor of Philosophy

The PhD programme offered is a research study which requires candidates to write a thesis not exceeding 100,000 words. Candidates also should pass their viva voce examination and meet the requirements for the award of Doctor of Philosophy (Pharmacy) Degree which is publishing at least TWO (2) manuscripts which is indexed by SCOPUS/ISI.

For full-time studies, the typical period is three (3) years, and the maximum period is six (6) years; for part-time studies, the typical period is four (4) years, and the maximum period is seven (7) years.

Extension of period of study and deferment

Students may apply for additional study time for up to three (3) semesters before reaching the maximum period of study by submitting a written application to the Dean. Any application to extend the period of study for a fourth semester must be approved by the Senate.

Students may also apply for deferment of study based on reasonable grounds, and the duration of this deferment will not be considered part of the period of study. The deferment of study may be permitted for a minimum period of one (1) semester and must not exceed four (4) semesters throughout the period of study.

University Compulsory Course

(a) For foreign candidates with no knowledge and basic skills in Malay language or Malay language is not the main language of the candidate (national language or official language):

Code	Course Title	Unit
LMCM1083	Bahasa Melayu Komunikasi Antarabangsa	3

(b) For foreign candidates from Singapore, Brunei Darussalam, Indonesia and Southern Thailand:

Code	Course Title	Unit
LMCM1093	Bahasa Melayu Untuk Pelajar Nusantara	3

Faculty Compulsory Course

Code	Course Title*	Unit
NFNP6013	Research Methodology and Innovation[#]	3
NFNP7013	Research Administration, Innovation and commercialization[#]	3

*students only need to register for one course

Synopses of Faculty Compulsory Courses

NFNP6013 Research Methodology and Innovation

This course focuses on three aspects of research ie. research methodology, statistical analysis and innovation. Upon completion of this course, students should be able to conduct literature reviews, apply appropriate research methods and statistical analysis techniques, acquire knowledge of intellectual property and commercialization and be able to propose entrepreneurial project-oriented research.

Recommended Reading

Panduan Penulisan Tesis Gaya UKM. Cetakan Ketiga 2015. Bangi: Pusat Siswazah, Universiti Kebangsaan Malaysia.

Zainudin Awang, Julina Tajul Ariffin. 2016. *Postgraduate Research Proposal : A Step By Step Guide In Writing Proposal For Postgraduate Students*.

Uwe Flick. 2017. *Introducing Research Methodology : A Beginner's Guide To Doing A Research Project*. 2nd Ed. SAGE Publication Ltd.

Wan Muhammad Amir W Ahmad, Basarudin Ahmad, Sarimah Abdullah, Nor Azlida Aleng@Mohamad. 2017. *Statistical Analysis Using SPSS For Health Sciences*. Penerbit USM.

Julie Pallant. 2016. *SPSS Survival Manual: A Step By Step Guide To Data Analysis Using IBM SPSS 6th Edition*. McGraw-Hill Education, London.

NFNP7013 Research Administration, Innovation and Commercialization

This course focuses on three aspects of research ie. research administration, innovation and commercialization. Upon completion of this course, students should be able to produce Review Articles, apply appropriate research methods and statistical analysis techniques, understand the intellectual property registration process and research-based commercial products as well as be able to propose entrepreneurial project-oriented research.

Recommended Reading

Panduan Penulisan Tesis Gaya UKM. Cetakan Ketiga 2015. Bangi: Pusat Siswazah, Universiti Kebangsaan Malaysia.

Zainudin Awang, Julina Tajul Ariffin. 2016. *Postgraduate Research Proposal : A Step By Step Guide In Writing Proposal For Postgraduate Students*.

Uwe Flick. 2017. *Introducing Research Methodology : A Beginner's Guide To Doing A Research Project*. 2nd Ed. SAGE Publication Ltd.

Wan Muhammad Amir W Ahmad, Basarudin Ahmad, Sarimah Abdullah, Nor Azlida Aleng@Mohamad. 2017. *Statistical Analysis Using SPSS For Health Sciences*. Penerbit USM.

Julie Pallant. 2016. *SPSS Survival Manual: A Step By Step Guide To Data Analysis Using IBM SPSS 6th Edition*. McGraw-Hill Education, London.

Areas of Research

Pharmaceutical Chemistry & Pharmacology

- Phytochemical studies
- Pharmacognostical studies
- Herbal product development from natural resources
- Synthesis of novel bioactive derivatives
- Herbal analysis
- Pharmacology and toxicology studies
- Bioassays

Pharmaceutics

- Topical and transdermal delivery
- Solid dosage forms
- Protein and gene delivery
- Injection and sterile preparations
- Colonic drug delivery
- Polymer synthesis for drug delivery and targeting

Clinical Pharmacy & Pharmacy Practice

- Pharmacotherapeutics
- Clinical pharmacokinetics
- Pharmacogenomics
- Medication safety
- Medication information and literacy
- Medication adherence
- Pharmacist competency
- Pharmacy education
- Drugs in sport

Conversion from Master's Programme to Doctoral Programme

Additional eligibility criteria required by the faculty are as follows:-

a. Only full-time master's students (research-mode) are eligible to apply for the conversion.
b. Candidates must have obtained a CGPA of at least 3.00 or its equivalent for their bachelor's degree.
c. Candidates must have at least one publication in their field of research, published or accepted for publication in a WoS-indexed journal.
d. The candidate must be the main or second author or have made a significant contribution to the submitted publication.
e. Each submitted publication can be used only once by a candidate.
f. The candidate must have obtained a satisfactory progress assessment and the support of their supervisor.

The application procedure is as follows:

a. Candidates must submit an application no later than the **TENTH** week of the third semester of studies, so that the assessment can be carried out within the same semester, and the results can be issued before the fourth semester begins.

b. Candidates should prepare a new proposal for Doctor of Philosophy studies that includes:

    - Additional scope of research
    - Research significance
    - Additional research objectives
    - Additional research time
    - New ideas in the research
    - Possible new discoveries to be made

c. Candidates must submit the application and required documents to their supervisor for approval.

d. A written application must then be submitted to the Dean after obtaining approval from the Main Supervisor or Chair of the Supervisory Committee.

e. The candidate's application will be screened by the Graduate Studies Committee (JKPS). Where all eligibility criteria are met, the Committee will propose that an Evaluator Panel be appointed by the Dean, consisting of:

- The Dean/Director or their representative, as Chairperson; and
- The Head of Department/Chairperson of the Research Centre or their representative; and
- Three (3) members of the university academic staff with relevant expertise, who must be a Professor or Associate Professor; and
- The Main Supervisor or the Chair of the Supervisory Committee.

f. The candidate will present their research proposal for assessment by the Evaluator Panel.

g. The Evaluator Panel will:

- Evaluate and give feedback on the research proposal and the candidate's achievements during a presentation session. The passing mark is 60%.

- If the candidate is eligible, approve the application for conversion from the master's programme to the doctoral programme; and

- Inform the candidate of the results after the assessment session.

- Notify the Centre for Academic Management (Academic UKM) in writing regarding the change of the student's study programme.

h. The candidate must revise the proposal according to the recommendations provided by the Evaluator Panel.

i. The candidate resubmits the amended proposal to their supervisor for approval.

j. The Dean will notify the candidate in writing of the final decision on the conversion status.

(Faculty Meeting 22 December 2021)

Publication of Manuscripts by Graduate Students for the Award of a Degree

 # This condition is also stipulated under Article (54)(1)(c) of the Universiti Kebangsaan Malaysia Regulations (Graduate Studies) 2021.

1. All students must meet the publication requirements as follows:

   a. Master of Science programme
      - One (1) WoS indexed journal article

   b. Doctor of Philosophy programme
      - Two (2) WoS indexed journal articles

2. During the submission of dissertation/thesis for examination, the candidate is required to:

   a. Fill in the Dissertation/Thesis Submission Form.

   b. Pay the dissertation/thesis examination fee.

   c. Attach evidence of manuscript(s) having been accepted for publication.

3. The Faculty/Institute may grant students a maximum of twelve (12) months to fulfil the publication requirements, starting from the date of submission of the corrected hard copy of the Dissertation/Thesis and confirmation from the nominee approved by the Oral Examination Committee.

4. This period of twelve (12) months is subject to the maximum duration of study.

5. Students who fail to complete the publication requirements within the period specified in subregulation 14A(6) shall be deemed to have "Failed and Not Eligible to Be Awarded a Degree."

(451st SENATE APPROVAL dated 16th January 2019)

Presentation and Attendance at the Faculty's Graduate Seminars

 # This condition is also stipulated under Article (54)(1)(d) of the Universiti Kebangsaan Malaysia Regulations (Graduate Studies) 2021.

Before the submission of thesis for examination, each graduate student (research mode) is required to:

a. Present:

   i. research proposal
   ii. progress reports
   iii. final report

b. Attend the Graduate Seminars organized by the faculty.

(Faculty of Pharmacy Meeting - 18 February 2013 & Special Meeting of the Faculty of Pharmacy – 25 July 2013)

Courses Required by the Faculty and the University

 # This condition is also stipulated under Article 54(1)(c) of the Universiti Kebangsaan Malaysia Regulations (Graduate Studies) 2021.

1. Candidates should pass all courses required by the Faculty and the University for the purpose of degree conferment (these include the Malay language course and the NFNP courses).

(Senate Meeting 413-27 August 2015)

Master of Clinical Pharmacy Programme

Introduction

Clinical Pharmacy is one of the rapidly developing areas of pharmacy. Clinical pharmacy is a pharmacy discipline which applies clinical skills in the practice of pharmacy and pharmaceutical care. This postgraduate course is designed to prepare pharmacists for the provision of high-level clinical pharmacy services in a range of practice settings. The course will provide an opportunity for students to acquire specialised knowledge and skills in clinical pharmacy practice and pharmacotherapy.

Objectives

The objectives of the programme (PEO) are to produce:

PEO 1 Scholars who master advanced knowledge, as well as pharmacotherapy, digital, and numeracy skills in the field of clinical pharmacy, in line with the needs of the profession and industry developments.

PEO2 Scholars who demonstrate leadership, autonomy, accountability, and communication skills.

PEO3 Scholars who possess lifelong learning skills and an entrepreneurial mindset in solving challenges related to the field of clinical pharmacy.

PEO4 Scholars who uphold ethics, integrity, and professionalism in carrying out their responsibilities in the field of clinical pharmacy.

Total Units

The total compulsory units set for this programme is 40 units.

PROGRAMME LEARNING OUTCOMES (PLOs) FOR MASTER OF CLINICAL PHARMACY

The Master of Clinical Pharmacy programme aims to produce graduates who are able to:

PLO1	Master advanced knowledge and understanding related to the field of clinical pharmacy.
PLO2	Analyse complex problems in the field of clinical pharmacy critically and creatively.
PLO3	Apply practical skills in tackling issues related to the field of clinical pharmacy.
PLO4	Demonstrate collaboration with individuals in diverse learning and work communities within clinical settings.
PLO5	Demonstrate skills in communicating effectively with both the scientific community and the general public in the field of clinical pharmacy.
PLO6	Apply appropriate digital technologies and analytical techniques for solving problems in the field of clinical pharmacy.
PLO7	Utilise numerical and graphical skills to solve problems in the field of clinical pharmacy.
PLO8	Demonstrate leadership, intellectual qualities, teamwork, autonomy, and accountability in executing tasks.
PLO9	Demonstrate a commitment to lifelong learning and self-development.
PLO10	Demonstrate entrepreneurial qualities relevant to clinical pharmacy practice.
PLO11	Comply with legal, ethical, professional, and sustainability standards.

Curriculum for the Master of Clinical Pharmacy

Full-Time Studies:

Semester I

Code	Course Title (Theory & Research Courses)	Unit
NFNK6312	Advanced Pharmacotherapy I	2
NFNK6332	Research Methodology and Biostatistics	2
NFNK6352	Advanced Clinical Pharmacy Practise	2
NFNK6372	Approaches to Clerkship and Clinical Case Management	2
NFNK6392	Clinical Research Project I	2
	Total credits	**10**

Code	Course Title (Compulsory Clerkship)*	Unit
	**Note: Choose two compulsory clerkship courses*	
NFNK6413	Pharmacotherapy Clerkship in Internal Medicine I	3
NFNK6423	Pharmacotherapy Clerkship in Internal Medicine II	3
NFNK6433	Pharmacotherapy Clerkship in Critical Care	3
NFNK6443	Pharmacotherapy Clerkship in Paediatric	3
	Total credits	**6**

Code	Course Title (Elective Clerkship)*	Unit
	**Note: Choose one elective clerkship course*	
NFNK6512	Pharmacotherapy Clerkship in Obstetrics and Gynaecology	2
NFNK6522	Pharmacotherapy Clerkship in Psychiatry	2
NFNK6532	Clinical Pharmacokinetic Clerkship	2
NFNK6542	Pharmacotherapy Clerkship in Oncology and Nuclear Pharmacy	2
NFNK6552	Pharmacotherapy Clerkship in Surgery and Parenteral Nutrition	2
NFNK6562	Drug Information Services Clerkship	2
NFNK6572	Review on Patient Medication Management Clerkship	2
	Total credits	**2**

Total credits for Semester I = 18 units

Full-Time Studies:
Semester II

Code	Course Title (Theory & Research Courses)	Unit
NFNK6322	Advanced Pharmacotherapeutics II	2
NFNK6342	Advanced Pharmacotherapeutics III	2
NFNK6362	Individualised Pharmacotherapy	2
NFNK6382	Clinical Practice in Community Pharmacy	2
NFNK6326	Clinical Research Project II	6
	Total credits	**14**

Code	Course Title (Compulsory Clerkship)*	Unit
	**Note: Choose two compulsory clerkship courses*	
NFNK6413	Pharmacotherapy Clerkship in Internal Medicine I	3
NFNK6423	Pharmacotherapy Clerkship in Internal Medicine II	3
NFNK6433	Pharmacotherapy Clerkship in Critical Care	3
NFNK6443	Pharmacotherapy Clerkship in Paediatric	3
	Total credits	**6**

Code	Course Title (Elective Clerkship)*	Unit
	**Note: Choose one elective clerkship course*	
NFNK6512	Pharmacotherapy Clerkship in Obstetrics and Gynecology	2
NFNK6522	Pharmacotherapy Clerkship in Psychiatry	2
NFNK6532	Clinical Pharmacokinetic Clerkship	2
NFNK6542	Pharmacotherapy Clerkship in Oncology and Nuclear Pharmacy Clerkship	2
NFNK6552	Pharmacotherapy Clerkship in Surgery and Parenteral Nutrition	2
NFNK6562	Drug Information Services Clerkship	2
NFNK6572	Review on Patient Medication Management Clerkship	2
	Total credits	**2**

Total credits for Semester II = 22 units

Overall total credits = 40 units

Part-Time Studies:

For part-time study, the standard period to complete the programme is two (2) years. In each semester, a part-time student is allowed to register not more than:
(i) twelve (12) credits, OR
(ii) three (3) courses

Recommended course registration in the first year:

Semester I

Theory courses x 3	6 units
Compulsory clerkship x 1	3 units
Total credits	**9 units**

Semester II

Theory courses x 3	6 units
Compulsory clerkship x 1	3 units
Elective clerkship x 1	2 units
Total credits	**11 units**

Total credit for Year I = 20 units

Recommended course registration in the second year:

Semester I

Theory courses x 1	2 units
Compulsory clerkship x 1	3 units
Elective clerkship x 1	2 units
Research project I	2 units
Total credits	**9 units**

Semester II

Theory courses x 1	2 units
Compulsory clerkship x 1	3 units
Research project II	6 units
Total credits	**11 units**

Total credits for Year II = 20 units

Overall total credits = 40 units

University Compulsory Course

(a) For foreign candidates with no knowledge and basic skills in Malay language or Malay language is not the main language of the candidate (national language or official language):

Code	**Course Title**	**Unit**
LMCM1083	Bahasa Melayu Komunikasi Antarabangsa	3

(b) For foreign candidates from Singapore, Brunei Darussalam, Indonesia and southern Thailand:

Code	**Course Title**	**Unit**
LMCM1093	Bahasa Melayu Untuk Pelajar Nusantara	3

Synopses of Courses for Master of Clinical Pharmacy

Core Courses (Theory)

NFNK6312 Advanced Pharmacotherapeutics I

This course contains lectures and problem-based learning. Students will cover management of related illnesses in terms of pathophysiology / pathogenesis, clinical signs and symptoms, latest evidence-based pharmacotherapy treatments, individualized treatment of choice, treatment effectiveness, monitoring methods and related side effects, and non-pharmacological management. The areas covered in this course are cardiology, respiratory, nephrology and neurology.

Recommended Reading

Chisholm-Burns, M.A., et al. 2016 Pharmacotherapy Principles & Practice, 4th ed, New York : McGraw-Hill Medical.

DiPiro, J.T., Yee, G.C, Posey, L.M. 2019. Pharmacotherapy : A Pathophysiologic Approach, 11th ed, New York : McGraw-Hill Medical.

Schwinghammer, T.L. 2017. Pharmacotherapy Casebook: A Patient-Focused Approach. 10th ed. New York: McGraw-Hill Medical.

Walker, R. & Whittlesea, C. 2018. Clinical Pharmacy And Therapeutics, 6th ed, Edinburgh: Churchill Livingstone/Elsevier.

Zeind CS and Carvalho MG. 2017 Applied therapeutics: The clinical use of drugs. 11th ed. Vancouver: Applied Therapeutics.

NFNK6322 Advanced Pharmacotherapy II

This course contains lectures and problem-based learning. Students will cover management of related illnesses in terms of pathophysiology / pathogenesis, clinical signs and symptoms, latest evidence-based pharmacotherapy treatments, individualized treatment of choice, treatment effectiveness, monitoring methods and related side effects, and non-pharmacological management. The areas covered in this course are endocrinology, wound management, gastroenterology, obstetric and gynaecology, dermatology, nuclear pharmacy and rheumatology.

Recommended Reading

Chisholm-Burns, M.A., et al. 2016 Pharmacotherapy Principles & Practice, 4th ed, New York : McGraw-Hill Medical.

DiPiro, J.T., Yee, G.C, Posey, L.M. 2019. Pharmacotherapy : A Pathophysiologic Approach, 11th ed, New York : McGraw-Hill Medical.

Schwinghammer, T.L. 2017. Pharmacotherapy Casebook: A Patient-Focused Approach. 10th ed. New York: McGraw-Hill Medical.

Walker, R. & Whittlesea, C. 2018. Clinical Pharmacy And Therapeutics, 6th ed, Edinburgh: Churchill Livingstone/Elsevier.

Zeind CS and Carvalho MG. 2017 Applied therapeutics: The clinical use of drugs. 11th ed. Vancouver: Applied Therapeutics.

NFNK6332 Research Methodology and Biostatistics

This course contains lecture sessions and workshops. Students will be exposed to the principles of epidemiology, the development of research methodologies that cover a wide range of research designs, types of sampling and bias methods, and statistics including types of data, sample size determination and study power, types of statistical analysis and selection of statistical analysis appropriate to the study.

Recommended Reading

Bowers D., 2019. Medical Statistics from Scratch: An Introduction for Health Professionals, 4th Edition. John Wiley & Sons Ltd: Chichester.

Kestenbaun B., 2019. Epidemiology and Biostatistics: Practice Problem Workbook. Springer, Cham

Peacock J.L., Kerry S.M., Balise R.R. 2017. Presenting Medical Statistics from proposal to Publication. Oxford University Press : Oxford.

Seritan G.C. et al., 2019. Guidelines for Small Size Samples Biostatistics in Current Medical Practice, E-Health and Bioengineering Conference (EHB), Romania, pp. 1-4.

Wisniewski, C. S. et al. 2019. Medical Literature Evaluation and Biostatistics. Clinical Pharmacy Education, Practice and Research, 143–162. doi:10.1016/b978-0-12-814276-9.00010-6.

NFNK6342 Advanced Pharmacotherapeutics III

This course contains lectures and problem-based learning. Students will cover management of related illnesses in terms of pathophysiology / pathogenesis, clinical signs and symptoms, latest evidence-based pharmacotherapy treatments, individualized treatment of choice, treatment effectiveness, monitoring methods and related side effects, and non-pharmacological management. The areas covered in this course are infectious, immunological and oncological diseases.

Recommended Reading

Chisholm-Burns, M.A., et al. 2016 Pharmacotherapy Principles & Practice, 4th ed, New York : McGraw-Hill Medical.

DiPiro, J.T., Yee, G.C, Posey, L.M. 2019. Pharmacotherapy : A Pathophysiologic Approach, 11th ed, New York : McGraw-Hill Medical.

Schwinghammer, T.L. 2017. Pharmacotherapy Casebook: A Patient-Focused Approach. 10th ed. New York: McGraw-Hill Medical.

Young, L. Y. & Koda-Kimble, M. A. 2018 Applied therapeutics: The clinical use of drugs. 11th edn. Vancouver: Applied Therapeutics.

Wells B.G., DiPiro, J.T., Schwinghammer, T.L., DiPiro, C.V. 2017. Pharmacotherapy handbook. 10th edition. McGraw-Hill Education USA

NFNK6352 Advanced Clinical Pharmacy Practise

In this course, students will be trained in the applications of clinical pharmacy concepts and advanced pharmacy practice skills. Discussion will also cover the applications of pharmaceutical care concepts in specialized pharmacy services, communication skills, and the management of drug and poison information.

Recommended Reading

da Costa F.A., Foppe can Mil J.W. & Alvarez-Risco A. 2018. The pharmacist guide to implementing pharmaceutical care. Springer.

Tietze K.J. 2012. Clinical Skills for Pharmacists: A patient-focused approach. 3rd ed. Elsevier.

Warholak T.L. & Nau D.P. 2010. Quality and safety in pharmacy practice. New York : McGraw-Hill Medical.

DiPiro, J.T., Yee, G.C, Posey, L.M. 2019. Pharmacotherapy : A Pathophysiologic Approach, 11th ed, New York : McGraw-Hill Medical.

Walker, R. & Whittlesea, C. 2018. Clinical Pharmacy And Therapeutics, 6th ed, Edinburgh: Churchill Livingstone/Elsevier

NFNK6362 Individualised pharmacotherapy

This course contains lectures and problem-based learning. Students will be trained to master the latest clinical pharmacokinetic and pharmacodynamic concepts and apply in pharmaceutical care. Students will be trained in individual patient disease management to optimize treatment effects. The service delivery process is discussed in terms of assessment of clinical status of patients, drug selection and target plasma/serum drug concentrations, designing dosing regimens, interpreting drug concentrations in plasma/serum, dose modification process and treatment regimen recommendations.

Recommended Reading

Rowland, M. & Tozer, T.N. 2010. Clinical Pharmacokinetics: concepts and applications, 4th ed. Philadelphia : Lippincott William and Wilkins.

Winter, M.E. 2017. Winter's Basic Clinical Pharmacokinetics, 6th ed. Philadelphia : Lippincott Williams & Wilkins.

Murphy, J.E. 2017. Clinical pharmacokinetics, 6th Ed. ASHP.

Rosenbaum S.E. 2016. Basic Pharmacokinetics and Pharmacodynamics: An Integrated Textbook and Computer Simulations, 2nd Edition: Wiley.

Current journals.

NFNK6372 Approaches to clerkship and clinical case management

This course trains students in systematic clerical processes and effective clinical case management. Topics covered include ethics and professional image, clinical pharmacist professional relationship with patients and other health professionals, diversity of laboratory and clinical data, clinical and medical data collection, clinical case documentation, evidence-based practice application and value in patient drug treatment, drug therapy planning and monitoring, patient education needs, and clinical approaches for specific populations such as intensive care, pediatrics, obstetric and gynecology (O&G).

Recommended Reading

Chisholm-Burns, M.A., et al. 2022. Pharmacotherapy Principles & Practice, 6th ed, New York : McGraw-Hill Medical.

DiPiro, J.T., Yee, G.C, Posey, L.M. 2023. Pharmacotherapy : A Pathophysiologic Approach, 12th ed, New York : McGraw-Hill Medical.

Brown T. & Shah S., 2013. Evidence-based clinical reasoning in medicine. Shelton: People's Medical Pub. House-USA.

Schwinghammer, T.L. 2023. Pharmacotherapy Casebook: A Patient-Focused Approach. 12th ed. New York: McGraw-Hill Medical.

Pagano, M.P. 2016. Health Communication for Health Care Professionals: An Applied Approach, 1st Ed. New York: Publisher Springer Publishing Co Inc.

NFNK6382 Clinical Practice in Community Pharmacy

Students will be trained to integrate the concept of clinical pharmacy in community pharmacy practice. The discussions will also include application of pharmaceutical care in community pharmacy services, counselling skills, minor ailments that require consultations from a community pharmacist and the general management of community pharmacy.

Recommended Reading

Beardsley, R.S., Skrabal, M.Z. & Kimberlin, C.L. 2019. Communication Skills in Pharmacy Practice. 7th ed. Philadephia: Lippincott Williams & Wilkins

Rutter, P. 2017. Community Pharmacy: Symptoms, diagnosis and treatment. 4th ed. London: Elsevier

da Costa F.A., van Mil J.W.F., Alvarez-Risco A. 2018. The Pharmacist Guide to Implementing Pharmaceutical Care. Switzerland: Springer

Schommer J.C., Olson A.W. 2019. Pharmacist Services. Switzerland: MDPI.

Pharmaceutical Services Division, Ministry of Health Malaysia. 2015. Community Pharmacy Benchmarking Guideline 2nd Edition: Malaysia.

Core Courses (Research)

NFNK6392 Clinical Research Project I

The Clinical Research Project I includes literature search, preparation and presentation of research proposals, pilot studies and preliminary data collection. The topics of research should cover the practical field of clinical pharmacy or pharmacotherapy. The results of this study are expected to improve pharmaceutical practices or current drug treatment methods. Students will be supervised by an assigned lecturer.

NFNK6326 Clinical Research Project II

The Clinical Research Project II literature search, data collection, data analysis, dissertation writing, presentation of research findings and oral examinations. The topics of research should cover the practical field of clinical pharmacy or pharmacotherapy. The results of this study are expected to improve pharmaceutical practices or current drug treatment methods. Students will be supervised by an assigned lecturer. Students also need to produce a manuscript for publication purposes.

Recommended Reading

Greenhalgh, T. & Dijkstra, P. 2024. How to read a paper : The Basics of Evidence-based Medicine and Healthcare. 7th ed. West Sussex : Wiley-Blackwell/BMJ Books.

Walliman, Nicholas. 2020. Your Research Project. Designing and planning your work. 4th ed. SAGE Publications.

Gaya UKM. https://www.ukm.my/pusatsiswazah/wp-content/uploads/2021/02/2015-GayaUKM-BI-Final.pdf

Current journals and clinical guidelines related to the research area.

Core Courses (Compulsory Clerkship)

NFNK6413 Pharmacotherapy Clerkship in Internal Medicine I
This course consists of a series of ward rounds, bedside teaching, discussion and clinical cases presentation. Students will be trained in pharmacotherapy management for patients in the wards. New theories and knowledge from the latest literature search will be applied in evidence-based patient management. Students will also be trained to identify and manage potential or actual issues of pharmaceutical care. In addition, the skills of clinical cases presentation (oral and in writing) will be trained. Selected clinical cases will cover medical problems related to cardiovascular, endocrine, dermatology, musculoskeletal and respiratory.

NFNK6423 Pharmacotherapy Clerkship in Internal Medicine II
This course consists of a series of ward rounds, bedside teaching, discussion and clinical cases presentation. Students will be trained in pharmacotherapy management for patients in the wards. New theories and knowledge from the latest literature search will be applied in evidence-based patient management. Students will also be trained to identify and manage potential or actual issues of pharmaceutical care. In addition, students will be trained in skills involving writing and oral presentation of clinical cases. Selected cases will cover renal, gastrointestinal, infection, haematology, and neurology.

NFNK6433 Pharmacotherapy Clerkship in Critical Care
This course will include ward rounds, bed-teaching, discussion and presentation of clinical cases. Students will be trained in the management of pharmacotherapy for patients in the ward. New theoretical knowledge and from the search for the latest literature will be applied to evidence-based patient management. Students will also be trained in identifying and managing potential or actual pharmaceutical issues. In addition, oral and written clinical case management skills will also be trained. Selected clinical cases will include problems related to infection, shock, acute organ failure, sedation and anesthesia.

NFNK6443 Pharmacotherapy Clerkship in Paediatrics
This course consists of a series of ward rounds, bedside teaching, discussion and clinical cases presentation. Students will be trained in pharmacotherapy management for patients in the wards. New theories and knowledge from the latest literature search will be applied in evidence-based patient management. Students will also be trained to identify and manage potential or actual issues of pharmaceutical care. In addition, the skills of clinical cases presentation (oral and in writing) will be trained. Selected cases will cover medical problems related to internal medicine in neonates, infants and pediatrics.

Recommended Reading

DiPiro J.T., Talbert R.L., Yee G.C., Matzke G.R., Wells B.G., Posey L. 2023. Pharmacotherapy: A Pathophysiologic Approach. 12th ed. USA: McGraw-Hill Education.

Whittlesea C. and Hodson K. 2019. Clinical pharmacy and therapeutics. 6th ed. Oxford: Elsevier.

Zeind C.S. and Carvalho M.G. 2023. Applied therapeutics: The clinical use of drugs. 12th ed. Vancouver: Applied Therapeutics.

Schwinghammer, T.L. 2023.. Pharmacotherapy Casebook: A Patient-Focused Approach. 12th ed. New York: McGraw-Hill Medical.

Jurnal-jurnal terkini – Annals of Pharmacotherapy, Archives of Internal Medicine, Pharmacotherapy, New England Journal of Medicine, The Lancet

Elective Courses (Elective Clerkship)

NFNK6512 Pharmacotherapy Clerkship in Obstetrics and Gynecology

This course consists of a series of ward rounds, bedside teaching, discussion and clinical cases presentation. Students will be trained in pharmacotherapy management for patients in the wards. New theories and knowledge from the latest literature search will be applied in evidence-based patient management. Students will also be trained to identify and manage potential or actual issues of pharmaceutical care. In addition, students will be trained in skills involving writing and oral presentation of clinical cases. Selected cases will cover issues related to obstetrics and gynecology.

Recommended Reading

DiPiro J.T., Talbert R.L., Yee G.C., Matzke G.R., Wells B.G., Posey L. 2020. Pharmacotherapy: A Pathophysiologic Approach. 11th ed. USA: McGraw-Hill Education.

Whittlesea C. and Hodson K. 2019. Clinical pharmacy and therapeutics. 6th ed. Oxford: Elsevier.

Zeind C.S. and Carvalho M.G. 2017. Applied therapeutics: The clinical use of drugs. 11th ed. Vancouver: Applied Therapeutics.

Schwinghammer, T.L. 2017. Pharmacotherapy Casebook: A Patient-Focused Approach. 10th ed. New York: McGraw-Hill Medical.

Jurnal-jurnal terkini – Annals of Pharmacotherapy, Archives of Internal Medicine, Pharmacotherapy, New England Journal of Medicine, The Lancet

NFNK6522 Pharmacotherapy Clerkship in Psychiatry

This course consists of a series of ward rounds, bedside teaching, discussion and clinical cases presentation. Students will be trained in pharmacotherapy management in psychiatry for patients in the wards. New theories and knowledge from the latest literature search will be applied in evidence-based patient management. Students will also be trained to identify and manage potential or actual issues of pharmaceutical care. In addition, the skills of clinical cases presentation (oral and in writing) will be trained. Selected cases will cover medical problems related to anxiety, schizophrenia, depression and bipolar disorder.

Recommended Reading

Wells, B.G., DiPiro, T.T., Schwinghammer, T.L., DiPiro, C.V. 2017. Pharmacotherapy handbook. 10th edition. McGraw-Hill Education USA

Martin C.P., Talbert, R.L. 2013. Pharmacotherapy bedside guide. McGraw-Hill Education USA.

DiPiro J.T., Talbert R.L., Yee G.C., Matzke G.R., Wells B.G., Posey L. 2020. Pharmacotherapy: A Pathophysiologic Approach. 11th ed. USA: McGraw-Hill Education.

Schwinghammer, T.L. 2017. Pharmacotherapy Casebook: A Patient-Focused Approach. 10th ed. New York: McGraw-Hill Medical.

Whittlesea C. and Hodson K. 2019. Clinical pharmacy and therapeutics. 6th ed. Oxford:Elsevier.

NFNK6532 Clinical Pharmacokinetic Clerkship

Students will be trained in the management of pharmacotherapy for patients in the ward. The theoretical knowledge and from the literature search will be applied to evidence-based patient management. Students will also be trained in identifying and managing potential or actual pharmaceutical issues. In addition, oral and written clinical case management skills will also be trained. The selected clinical cases will include pharmacokinetic issues related to poor drug absorption, distribution and saturated excretion.

Recommended Reading

Beringer P. 2017. Winter's Basic clinical pharmacokinetics, 6th ed. Wolters Kluwer: Philadelphia.

Bauer L.A. 2014. Applied Clinical Pharmacokinetics, 3rd ed. McGraw-Hill Education. New York.

Wells B.G. 2017. Pharmacotherapy handbook. 10th edition. McGraw-Hill Education USA.

Brown T. & Shah S. 2016. Evidence-based clinical reasoning in medicine. Shelton: People's Medical Pub. House-USA.

Koda-Kimble. 2012. Applied therapeutics : the clinical use of drugs. 10th Ed. Philadelphia : Wolters Kluwer/Lippincott Williams & Wilkins

NFNK6542 Pharmacotherapy Clerkship in Oncology and Nuclear Pharmacy

This course consists of a series of ward rounds, bedside teaching, discussion and clinical cases presentation. Students will be trained in pharmacotherapy management for patients in the wards. New theories and knowledge from the latest literature search will be applied in evidence-based patient management. Students will also be trained to identify and manage potential or actual issues of pharmaceutical care. In addition, students will be trained in skills involving writing and oral presentation of clinical cases. Selected cases will cover cancer and nuclear pharmacy.

Recommended Reading

Arcangelo V.P. 2017. Pharmacotherapeutics for Advanced Practice: A Practical Approach. 4th Ed. Wolters Kluwer: Philadelphia.

Wells B.G. 2017. Pharmacotherapy handbook. 10th edition. McGraw-Hill Education USA.

Brown T. & Shah S. 2016. Evidence-based clinical reasoning in medicine, Shelton: People's Medical Pub. House-USA.

Koda-Kimble. 2012. Applied therapeutics : the clinical use of drugs. 10th Ed. Philadelphia : Wolters Kluwer/Lippincott Williams & Wilkins.

Pagano MP. 2016. Health Communication for Health Care Professionals : An Applied Approach, 1st Ed. New York: Publisher Springer Publishing Co Inc.

NFNK6552 Pharmacotherapy Clerkship in Surgery and Parenteral Nutrition

This course consists of a series of ward rounds, bedside teaching, discussion and clinical cases presentation. Students will be trained in pharmacotherapy management parenteral nutrition support for patients in the wards. New theories and knowledge from the latest literature search will be applied in evidence-based patient management. Students will also be trained to identify and manage potential or actual issues of pharmaceutical care. In addition, the skills of clinical cases presentation (oral and in writing) will be trained. Selected cases will cover medical problems related to gastrointestinal tract, genitourinary, orthopaedic and neurology. Cases will also cover problems related to parenteral nutrition requirements in surgical patients.

Recommended Reading

Clinical Nutrition. 2020. N. E. P. Deutz. Elsevier. Volume 39. Hospital Pharmacy. 2020. Philadelphia, United States : Lippincott. Thousand Oaks, CA : Sage Publications. Volume 55.

Glynda Rees Doyle and Jodie Anita McCutcheon. 2015. Clinical Procedures for Safer Patient Care. Chapter 8. British Columbia BCcampus OpenEd.

DiPiro, J.T., et al. 2020. Pharmacotherapy : A Pathophysiologic Approach, 11th ed, New York : McGraw-Hill Medical.

Waldman, S.A. & Terzic, A. 2009. Pharmacology and Therapeutics : Principles to Practice, Philadelphia : Saunders/Elsevier.

Walker, R. & Whittlesea, C. 2011. Clinical pharmacy and Therapeutics, 5th ed, Edinburgh : Churchill Livingstone/Elsevier.

NFNK6562 Drug Information Services Clerkship

This course trains students on the systematic process of clerkship and effective management of clinical cases. Topics covered include information sources, drug information enquiries, the process of literature evaluation to answer drug information enquiries, evidence-based information in formulating accurate suggestions and recommendations, professional communication, medication use review (MUR) and ADR reporting at pharmacy settings. In addition, students will also be trained for oral case presentation and documentation for cases related to drug information.

Recommended Reading

Malone P., Meghan M., Park S. 2018. Drug Information: A guide for pharmacists. 6th Edition. McGraw-Hill Education.

Gabay, M. 2015. The Clinical Practice of Drug Information. Jones & Bartlett Learning

Kier K. & Goldwire M. 2018. Drug Information Resources and Literature Retrieval. 7th Edition, ACCP's Pharmacotherapy Self-Assessment Program.

Schwinghammer, T.L. 2017. Pharmacotherapy Casebook: A Patient-Focused Approach. 10th ed. New York: McGraw-Hill Medical.

Pangkalan data Ovid MEDLINE, PubMed dan Cochrane.

NFNK6572 Review on Patient Medication Management Clerkship

This course contains a review of patients' medication management. It involves clinical clerkship, discussion and case presentation. Students will be trained to conduct medication management review through evaluation of patient information, assessment of medication use and recommend solutions on issues related to patients' medication use such as patient education and others. In addition, students will also be trained for clinical case presentation and documentation.

Recommended Reading

DiPiro, J,T,, et al. 2016. *Pharmacotherapy: A Pathophysiologic Approach, 10th ed.* New York: McGraw-Hill Medical.

Schwinghammer, T.L. 2014. *Pharmacotherapy Casebook: A Patient-focused Approach. 9th ed.* New York:McGraw-Hill Medical.

Waldman, S.A. & Terzic, A. 2009. *Pharmacology and Therapeutics: Principles to Practice.* Philadelphia: Saunders/Elsevier.

Walker, R. & Whittlesea, C. 2011. *Clinical Pharmacy and Therapeutics, 5th ed.* Edinburgh: Churchill Livingstone/Elsevier. Current pharmacy and medical journals.

Master of Science (Pharmaceutical Analysis)

Introduction

The program is designed to produce skilled manpower in the field of pharmaceutical analysis in line with the development of the pharmaceutical and herbal industries in the country. Master of Science (Pharmaceutical Analysis) Programme will contribute to the generation of the required expertise in the public and private sectors by providing specialised knowledge and skills in the field of pharmaceutical analysis.

Objectives

Objectives of this programme (PEO) are to produce:

PEO1 Scholars who master advanced knowledge as well as practical, digital, and numeracy skills in fields related to pharmaceutical analysis, in line with the needs of the profession and industry developments.

PEO2 Scholars who demonstrate leadership, autonomy, accountability, and skills in communicating effectively with various stakeholders.

PEO3 Scholars who possess lifelong learning skills and an entrepreneurial mindset for solving challenges related to the field of pharmaceutical analysis.

PEO4 Scholars who uphold ethics, integrity, and professionalism in carrying out responsibilities related to the field of pharmaceutical analysis.

Total unit

The total number of compulsory units set for this programme is 40.

PROGRAMME LEARNING OUTCOMES (PLOs) FOR MASTER OF SCIENCE (PHARMACEUTICAL ANALYSIS)

The Master of Science (Pharmaceutical Analysis) programme aims to produce graduates who are able to:

PLO1 Master advanced knowledge related to the field of pharmaceutical analysis.

PLO2 Analyse complex problems in fields related to pharmaceutical analysis critically and creatively.

PLO3 Apply practical skills to address issues in fields related to pharmaceutical analysis.

PLO4 Demonstrate collaboration with individuals in diverse learning communities.

PLO5 Demonstrate skills in communicating effectively with both the scientific community and the general public in fields related to pharmaceutical analysis.

PLO6 Apply appropriate digital technologies and analytical techniques to address problems in fields related to pharmaceutical analysis.

PLO7 Utilise numerical skills, graphics, and visual aids to solve problems in fields related to pharmaceutical analysis.

PLO8 Demonstrate leadership, intellectual qualities, teamwork, autonomy, and accountability in executing tasks.

PLO9 Demonstrate a commitment to lifelong learning and self-development.

PLO10 Demonstrate entrepreneurial qualities relevant to the field of pharmaceutical analysis.

PLO11 Comply with legal, ethical, professional, and sustainability standards.

Curriculum for Master of Science (Pharmaceutical Analysis)

Programme Core Courses

Full-time studies:

The standard duration for full-time studies is one (1) year, or two (2) semesters. The courses offered in each semester are as follows:

Semester I

Code	Course Title	Unit
NFNA6613	Drug Discovery and Development	3
NFNA6713	Pharmaceutical Quality Assurance	3
NFNA6813	Pharmaceutical Dosage Design	3
NFNA6913	Biopharmaceutical Technology	3
NFNA6612	Research Methodology & Safety At Workplace	2
NFNA6712	Statistics and Chemometrics for Pharmaceutical Analysis	2
NFNA6812	Research Project I	2
	Total credits	**18**

Semester II

Code	Course Title	Unit
NFNA6624	Spectroscopic Techniques in Structure Elucidation	4
NFNA6623	Pharmaceutical Separation Methods	3
NFNA6622	Pharmaceutical Quality Control	2
NFNA6722	Halal Pharmaceuticals	2
NFNA6822	Herbal Analysis	2
NFNA6723	Bioequivalence	3
NFNA6626	Research Project II	6
	Total credits	**22**

Part-time studies:

The standard duration for part-time studies is two (2) years or four (4) semesters. The recommended course registration is as follows:

Semester I

Code	Course Title	Unit
NFNA6613	Drug Discovery and Development	3
NFNA6713	Pharmaceutical Quality Assurance	3
NFNA6612	Research Methodology & Safety At Workplace	2
NFNA6812	Research Project I	2
	Total credits	**10**

Semester II

Code	Course Title	Unit
NFNA6624	Spectroscopic Techniques in Structure Elucidation	4
NFNA6622	Pharmaceutical Quality Control	2
NFNA6723	Bioequivalence	3
	Total credits	**9**

Semester III

Code	Course Title	Unit
NFNA6813	Pharmaceutical Dosage Design	3
NFNA6913	Biopharmaceutical Technology	3
NFNA6712	Statistics and Chemometrics for Pharmaceutical Analysis	2
	Total credits	**8**

Semester IV

Code	Course Title	Unit
NFNA6623	Pharmaceutical Separation Methods	3
NFNA6722	Halal Pharmaceuticals	2
NFNA6822	Herbal Analysis	2
NFNA6626	Research Project II	6
	Total credits	**13**

University Compulsory Course

(a) For foreign candidates with no knowledge and basic skills in Malay language or Malay language is not the main language of the candidate (national language or official language):

Code	**Course Title**	**Unit**
LMCM1083	Bahasa Melayu Komunikasi Antarabangsa	3

(b) For foreign candidates from Singapore, Brunei Darussalam, Indonesia and southern Thailand:

Code	**Course Title**	**Unit**
LMCM1093	Bahasa Melayu Untuk Pelajar Nusantara	3

Synopses of Courses for Master of Science (Pharmaceutical Analysis)

NFNA6612 Research Methodology & Safety At Workplace

The purpose of this course is basic research and Occupational Safety & Health Administration (OSHA). Further discussion covers highlights knowledgeable in writing literature review, proposal presentation and perform research projects taking into consideration related health and safety aspects. Among the topics discussed include rules on dangerous chemicals, handling, storage and disposal of hazardous chemicals and safety procedures in laboratories.

Recommended Reading

Rozmi, I. 2015. Metodologi Penyelidikan Teori dan Praktis. Bangi: Universiti Kebangsaan Malaysia.

Lebrun, L.L. 2011. Scientific writing: A reader and writer's guide. New Jersey: World Scientific.

Goetsch, D.L. 2015. Occupational Safety and Health for Technologists, Engineer & Managers. 7th Edition. : New Jersey: Prentice Hall.

Peraturan Keselamatan Ditempat Kerja Universiti Kebangsaan Malaysia. 2005. Bangi: Universiti Kebangsaan Malaysia.

Occupational Safety and Health Act (OSHA) and Regulations. 2005. Malaysia: MDC Publishers Sdn Bhd.

NFNA6613 Drug Discovery and Development

This course covers the general principals and strategies in discovering new drugs and developing them for the marketplace including the development of drugs from natural products. Students also will be given an overview of physical/chemical properties of drugs, their route of administrations, the importance of drug substances and drug formulations on absorption and in vivo distribution of drugs to the site of actions.

Recommended Reading

Nogrady, T. & Weaver, D.F. 2005. Medicinal Chemistry: A Molecular and Biochemical Approach. Ed. Ke-3. United Kingdom: Oxford University Press.

Patrick, G.L. 2017. An Introduction to Medicinal Chemistry. Ed. Ke-6. United Kingdom: Oxford University Press.

Taylor, K.M.G. & Aulton, M.E. 2018. Aulton's Pharmaceutics: The Design and Manufacture of Medicines. Ed. Ke-5. London: Elsevier.

Cairns, D. 2012. Essentials of Pharmaceutical Chemistry. London: Pharmaceutical Press.

Hill, R.G. 2013. Drug Discovery and Development: Technology in Transition. Edinburg: Churcill Livingstone Elsevier.

NFNA6622 Pharmaceutical Quality Control

The course consists of lectures, tutorials, practical sessions and workshops. The objectives of the course are to provide the student with the knowledge and skills in various aspects of quality control of drugs and pharmaceuticals. Emphasis is given on basic and modern instrumental techniques used in analysis of drugs in raw materials, formulation and physiological fluids, sampling procedures, control of starting materials and finished products according to official pharmacopoeias and other standards, in-process controls on various dosage forms, stability studies and testing, environmental monitoring and control and statistical quality controls. Practical classes allow the students to apply appropriate methods for standardization, analysis and quality control on pharmaceutical raw materials and finished products according to the stated pharmacopoeial procedures.

Recommended Reading

Graham P. Bunn, 2019. Good Manufacturing Practices for Pharmaceuticals, 7th Edition. US: Drugs and the Pharmaceutical Sciences.

David G. Watson, 2016. Pharmaceutical Analysis : A Textbook for Pharmacy Students and Pharmaceutical Chemists, 4th Revised Edition, London: Elsevier Health Sciences.

PIC/S, January 2017. Guide to Good Manufacturing Practice for Medicinal Products, PE 009-8.

Ohannesin, L & Streeter, A.J. 2007. Handbook of Pharmaceutical Analysis. New York: Marcel Dekker.

British Pharmacopoeial Commission 2018. British Pharmacopoeia 2018. London. The Stationary Office United States Pharmacopeial Convention 2018.

United States Pharmacopeia-National Formulary (USP 32-NF 27). Rockville.

NFNA6623 Pharmaceutical Separation Methods

The course will expose students to have a good understanding of the theories and applications of techniques in separation techniques and able to select appropriate techniques and analytical methods and apply the knowledge in finding practical solution. The techniques include applications of high pressure liquid chromatography, gas chromatography, supercritical fluid chromatography, electrophoresis, gas chromatography-mass spectrophotometry (GC-MS) and liquid chromatography-mass spectrophotometry (LC-MS) in the body and pharmaceutical products.

Recommended Reading

Beckett, A.H. & Stenlake, J.B. 2005. Practical Pharmaceutical Chemistry. Part 2. UK: Athlone Press.

British Pharmacopoeia. 2018. London: British Pharmacopoeia Commission Secretariat of the Medicines and Healthcare Products Regulatory Agency.

Steen, H.H., Stig, P. & Knut E. R. 2012. Introduction to Pharmaceutical Chemical Analysis, Wiley.

Watson, D.G. 2012. Pharmaceutical Analysis: A Textbook for Pharmacy Students and Pharmaceutical Chemists. Edinburgh: Elsevier Churchill Livingstone.

NFNA6624 Spectroscopic Techniques in Structure Elucidation

On completion of this course, students should have a good understanding of the theories and applications associated with advanced spectroscopic techniques including the principles, instrumentation, data interpretation and uses in pharmaceutical analysis. Students also should be able to select appropriate techniques and analytical methods and apply the knowledge in finding practical solution. The spectroscopic techniques include ultraviolet-visible, fluorescence, atomic absorption, atomic emission, infrared, Raman, nuclear magnetic resonance and mass spectroscopy. The students will also acquire advanced understanding of the applications of integrated spectroscopic techniques for the structural elucidation of compounds in drug discovery and pharmaceutical analysis in drug development and quality control.

Recommended Reading

Beckett, A.H. & Stenlake, J.B. 2005. Practical Pharmaceutical Chemistry. Part 2. UK: Athlone Press.

British Pharmacopoeia. 2018. London: British Pharmacopoeia Commission Secretariat of the Medicines and Healthcare Products Regulatory Agency.

Pavia, D.L., Lampman, G.M. & Kriz, G.S. Vyvyan, J.A. 2015. Introduction to Spectroscopy. USA: Cengage Learning.

Siddiqui, A. A. 2011. Pharmaceutical Analysis. New Delhi: CBS Publishers.

Watson, D.G. 2012. Pharmaceutical Analysis: A Textbook for Pharmacy Students and Pharmaceutical Chemists. Edinburgh: Elsevier Churchill Livingstone.

NFNA6712 Statistics and Chemometrics for Pharmaceutical Analysis

The purpose of this course is to introduce students to the theories and applications of statistical method of analysis in pharmaceutical chemistry, able to select appropriate methods and apply the knowledge in solving problems related to statistics and chemometrics. Techniques to be learned include application of statistics (research questions and hypothesis, research design, bias, confounder, randomization, sample size calculation, descriptive and inferential statistics) and multivariate data analysis (principle component analysis (PCA), cluster analysis, classification and multivariate regression). Training in the use of computers for statistical and multivariate data analysis will be carried out using SPSS and Unscrambler®.

Recommended Reading

Dretzke, BJ. 2013. Statistics with Microsoft Excel. Boston: Pearson.

Luna, AS (ed). 2017. Chemometrics: methods, applications and new research. UK: Nova Science Pub Inc.

Montgomery, DC. 2013. Statistical Quality Control: A Modern Introduction. 7th Ed.

Wiley Sharif, S. 2018. Statistics for Nonstatisticians: Basic Guide to SPSS. Malaysia.

Wehrens, R. 2011. Chemometrics with R: Multivariate Data Analysis in the Natural Sciences and Life Sciences. Berlin: Springer.

NFNA6713 Pharmaceutical Quality Assurance

The course is aimed at providing students with knowledge and understanding of specific requirements on quality assurance and regulations in pharmaceutical and other related industries. Lectures will emphasize on principles of quality assurance, documentation and record, principles and applications of the guidelines for Good Manufacturing Practice (GMP), Good Laboratory Practice (GLP), Good Clinical Practice (GCP) and regulatory requirements for assuring quality in pharmaceutical production and related industries. Seminar sessions, workshops, organized visits and self-learning are aimed at strengthening theoretical knowledge and providing skills in various applications of quality assurance.

Recommended Reading

Graham P. Bunn, 2019. Good Manufacturing Practices for Pharmaceuticals, 7th Edition. US: Drugs and the Pharmaceutical Sciences.

PIC/S, January 2017. Guide to Good Manufacturing Practice for Medicinal Products, PE 009-8.

WHO, 2004. Quality Assurance of Pharmaceuticals, A Compendium of guidelines and related materials, Volume 2, Geneva. British Pharmacopoeial Commission 2018.

British Pharmacopoeia 2018. London. The Stationary Office United States Pharmacopeial Convention 2018.

United States Pharmacopeia-National Formulary (USP 32-NF 27). Rockville.

NFNA6722 Halal Pharmaceuticals

The halal industry is growing rapidly in line with high consumer demand around the world. Starting with the food sector, halal concepts have been adopted in several other sectors such as banking, hospitality, fashion, cosmetics, and pharmaceuticals. The halal principle is no longer considered as a religious requirement but has been accepted as one of the international quality assurance services - or products. The concept of halal and toyyiban emphasizes the need to fulfill the basic or minimum halal principle of health, safety, sanitation, nourishment, risk exposure, environment, social-related aspects and others according to the needs of the situation or application. Malaysia is committed in developing the halal industry in line with the country's aspiration to become a global halal hub champion. In line with this, the pharmaceutical halal industry has also grown and the halal concept has been taken into account in pharmaceutical services. In this regard, pharmacist and pharmacy students need to be equipped with the understanding and skills related to this topic.

The main objective of this course is to enable students to understand and further elaborate on the use of halal and toyyiban concepts in pharmaceuticals, especially in the fields of practice, manufacturing and research. Students will also be explained of the misunderstanding and negative stigma of this concept. Courses will be delivered through lectures, class discussions and case studies to be shared by industry representatives. The course also focuses on learning through experience in which students will conduct research studies on the topic of pharmaceutical halal in groups and organize a seminar on the awareness of halal pharmaceutical.

Recommended Reading

Halal Pharmaceuticals- General Guidelines MS2424:2019, Department of Standards Malaysia.

JAKIM, Guidelines for Halal Assurance Managment System, 2012, Kuala Lumpur.

Kausar A. 2015. Manufacturing of Halal Pharmaceuticals. 1st ed. IIUM Press, Kuala Lumpur.

Panduan penggunaan ubat-ubatan yang mengandungi unsur tidak halal kepada pesakit muslim di Kementerian Kesihatan Malaysia, KKM 2018.

Muhammad Mustaqim MZ, Abd Hamid AM, Arif Fahmi MY. The Use of Forbidden Materials in Medicinal Products: An Islamic Perspective. Middle-East J. Sci. Res., 16 (Approaches of Halal and Thoyyib for Society, Wellness and Health): 05-10, 2013.

NFNA6723 Bioequivalence

The course consists of lectures, tutorials, case studies and problem based learning to critically analyse and review bioequivalence related method validation, bioanalytical and clinical study reports. Students should be able to give detailed explanation for invitro and in vivo dissolution testing. On completion of the course, students should have a good understanding on multiple aspects of the latest national and international guidelines. In addition, students should be able to perform pharmacokinetic and statistical calculations, with also the ability to prepare some relevant bioequivalence centre protocols.

Recommended Reading

Asean guideline for the conduct of bioequivalence studies. (March 2015; 43 pages)

GuideLines OnDrug Bioequivalence Requirements In the GCC Countries. ICH guidelines. (2010; 56 pages)

WHO Key Resources on Bioequivalence. https://extranet.who.int/prequal/content/bioequivalence-0

Guidance for Organizations Performing in Vivo Bioequivalence Studies. WHO Technical Report Series, No. 996, 2016, Annex 9 (2016; 42 pages).

General Notes on Biopharmaceutics Classification System (BCS)-based Biowaiver Applications. WHO Prequalification Team Guidance Documents. 22 March 2019.

NFNA6813 Pharmaceutical Dosage Design

This course consists of two main sections: radiopharmaceutical section which emphasizes the use, dose calculation and quality control of radiopharmaceutical products and dosage design section covering various types of pharmaceutical dosage design, preformulation aspects, and packaging. Emphasis is given to the preformulation phase of pharmaceutical preparations and activities involving the processing of various forms of pharmaceutical dosages such as tablets, capsules, sheets, emulsions, gels, sterile preparations and so on.

Recommended Reading

Ansel, H. C., Popovich, N. G. & Allen, L. V. Jr. 2010. Pharmaceutical Dosage Forms and Drug Delivery Systems. Ed. Ke-9. Baltimore: Lippincott Williams and Wilkins. Aulton, M.E & Taylor, K (eds.). 2013.

Aulton's Pharmaceutics: The Design and Manufacture of Medicines, 4th edition. Edinburgh: Churchill Livingstone.

Gibson, M., 2009. Pharmaceutical Preformulation and Formulation. Ed. Ke-2. New York: Informa Healthcare.

Anthony Theobold (editor). 2010. Sampson's Textbook of Radiopharmacy. 4th ed. London: Pharmaceutical Press.

British Pharmacopoeia. 2019. London: Royal Pharmaceutical Society of Great Britain.

NFNA6822 Herbal Analysis

The purpose of this course is to introduce students to the analysis of drugs from natural resources. Topics of study comprise of phytochemistry and quality control of crude drugs, herbal preparations and herbal products; including regulations, manufacturing and standardisation of herbal products, and tests for quality control, safety and efficacy.

Recommended Reading

British Pharmacopoeia. 2019. London: British Pharmacopoeia Commission Secretariat of the Medicines and Healthcare Products Regulatory Agency.

Guidelines on Good Manufacturing Practice for Traditional Medicines and Health Supplements. 2008. Kuala Lumpur: Ministry of Health, Malaysia.

Heinrich, M.; Barnes, J.; Gibbons, S. & Williamson, E.M. 2012. Fundamentals of Pharmacognosy & Phytotherapy. Edisi ke-2. London : Churchill Livingstone.

List P.H. & Schmidt P.C. 1990. Phytopharmaceutical Technology. Boca Raton: CRC Press.

WHO. 2011. Quality control methods for herbal materials. Geneva: World Health Organization.

NFNA6913 Biopharmaceutical Technology

The course consists of lectures and self study. Students will be served with balanced overview of the biopharmaceutical industry, not only in terms of categorizing the products currently available, but also illustrating how these drugs are produced and brought to market. The major emphasis is placed upon polypeptide-based therapeutic agents as well as the potential of nucleic acid-based drugs. The course offers insight on latest developments within the sector, provide a greater focus upon actual commercial products thus far approved and how they are manufactured, which include substantial new sections detailing the techniques applied for biopharmaceutical assays, clinical testing challenges, and advances in genomics and proteomics will likely impact upon (bio)pharmaceutical drug development.

Recommended Reading

Katzung, B.G., Masters, S.B. and Trevor, A.J. (2009) Basic and Clinical Pharmacology. 11th Edition, McGraw-Hill Medical, New York.

Walsh, G. (2013) Biopharmaceuticals: Biochemistry and Biotechnology. 2nd Edition, Wiley-Blackwell, New York.

Jameel, F., Hershenson, S., Khan, M.A., Martin-Moe, S. (2015) Quality by Design for Biopharmaceutical Drug Product Development, Springer-Verlag New York.

Jorgensen, L. and Nielsen, H. M. (2009) Delivery Technologies for Biopharmaceuticals: Peptides, Proteins, Nucleic Acids and Vaccines , Johm Wilwy & Sons Ltd, New York.

Pharmaceutical Engineering Guides for New and Renovated Facilities: Biopharmaceutical Manufacturing Facilities by ISPE Headquarters (2004).

NFNA6812 Research Project I

This course will expose the students to the principles of designing and conducting research projects, interpreting and analysing data and project paper writing. The research project is laboratory-based in pharmaceutical analysis. The students will conduct the research project over two semesters under the supervision of lecturers. The course activities include the presentation of a research proposal and lab works.

Recommended Reading

Panduan Penulisan Tesis Gaya UKM 2015. Edisi Semak. 3, Bangi: Pusat Pengajian Siswazah, Universiti Kabangsaan Malaysia.

Rowe, P. 2016. Essential Statistics for the Pharmaceutical Sciences. Oxford: John Wiley & Sons.

Sankalp Yadav, G. 2016. Plagiarism - A Serious Scientific Misconduct. International Journal of Health Sciences and Research (IJHSR).

Journals related to the field of research.

Books related to the field of research.

NFNA6626 Research Project II

This course will expose the students to the principles of designing and conducting research projects, interpreting and analysing data and project paper writing. The research project is laboratory-based in pharmaceutical analysis. The students will conduct the research project under the supervision of lecturers. The course activities include project paper writing, presentation of results and viva.

Recommended Reading

Panduan Penulisan Tesis Gaya UKM 2015. Edisi Semak. 3, Bangi: Pusat Pengajian Siswazah, Universiti Kabangsaan Malaysia.

Rowe, P. 2016. Essential Statistics for the Pharmaceutical Sciences. Oxford: John Wiley & Sons.

Sankalp Yadav, G. 2016. Plagiarism - A Serious Scientific Misconduct. International Journal of Health Sciences and Research (IJHSR).

Journals related to the field of research.

Books related to the field of research.

Varsiti Kita

Lihat kampusku yang tenang
Damainya alam ciptaan Tuhan
Panduan ilmu dan keimanan
Amal dan jernih digabungkan
Lautan ilmu kita harumkan
Sumber ilmuwan berkembangan

Inilah varsiti kita
Ditengahkan hasrat rakyat kita
Dari mula untuk semua
Bagai tanda perjuangan kita

Bangun berbakti membela
Memupuk insan jiwa bertakwa
Memimpin manusia semua
Kenal akan adat unggulnya
Membina Negara senantiasa
Maju berilmu dan bahagia

Inilah varsiti kita
Ditengahkan hasrat rakyat kita
Dari mula untuk semua
Bagai tanda perjuangan kita

Penggubah
Nazri bin Ahmad

Ilmu, Mutu dan Budi

Ilmu, Mutu dan Budi
Itulah harga diri
Hidup siswa siswi
Harapan ibu pertiwi

Ilmu, Mutu dan Budi
Itulah pelita hati
Asas pembinaan peribadi
Untuk menabur bakti

Itulah pegangan hidup kami
Sumber kekuatan rohani
Mutiara peradaban asli
Titian hidup abadi

Ilmu, Mutu dan Budi
Itulah pusaka sejati
Menuju cita-cita murni
Semoga Tuhan memberkati

Penggubah
Zubir bin Ali

Lirik
Haji Salleh bin Hj.Yusof

Jawatankuasa Penerbitan Buku Panduan Siswazah
Fakulti Farmasi
Sesi Akademik 2025-2026

Penasihat
Prof. Dr. Mohd Makmor Bakry
Dekan

Pengerusi
Prof. Madya Dr. Ernieda Md Hatah
Timbalan Dekan (Akademik)

Ahli Jawatankuasa
Prof. Madya Dr. Adyani binti Md Redzuan
Penolong Dekan (Kualiti dan Strategi)

Dr. Shamin Mohd Saffian
Penolong Dekan (Keusahawanan)

Dr. Mohd Kaisan Mahadi
Penolong Dekan (Penagajaran & Citra)

Dr. Chua Eng Wee
Ketua Program Siswazah

Dr. Siti Azdiah binti Abdul Aziz
Penyelaras Program Sarjana Farmasi Klinikal

Prof. Madya Dr. Juriyati Jalil
Penyelaras Program Sarjana Sains (Analisis Farmaseutikal)

Dr. Syaratul Dalina Yusoff
Penyelaras Program Siswazah (Penyelidikan)

Setiausaha
Encik Thohir Hasim
Penolong Pendaftar

Puan Noor Azlin Bolki
Pembantu Tadbir (P/O)

Reka Bentuk
Dr. Shamin Mohd Saffian
Penolong Dekan (Keusahawanan)

Dr. Nur Vaizura Mohamad
Penyelaras Komunikasi Strategik