

Program Seni Bina ***Programme of Architecture***

Pengenalan

Jabatan Senibina telah ditubuhkan pada tahun 2002. Program prasiswazah yang ditawarkan ialah Sarjana Muda Sains Seni Bina (LAM Bahagian 1). Sarjana Muda Sains Seni Bina (LAM Bahagian 1) adalah ijazah separa-profesional. Ia merangkumi kursus-kursus seperti studio reka bentuk, sejarah dan teori seni bina, sains persekitaran, struktur bangunan, kemudahan bangunan, komunikasi seni bina, teknologi dan bahan binaan bangunan. Program ini berorientasikan kerja-kerja kursus studio reka bentuk, iaitu teras utama kepada program ini.

Introduction

The Department of Architecture was established in 2002. The undergraduate program on offer is Bachelor of Architectural Science (LAM Part 1). Bachelor of Architectural Science (Part 1) is a semi-professional degree. It comprises courses such as design studio, history and theory of architecture, environmental science, building structures, building services, architectural communication, building technology and materials. The program is oriented towards the design studio course, which is the core for the programme.

Objektif Program/ *Program Educational Objective (PEO)*

PEO1

Jurutera/Arkitek yang mempunyai sahsiah dan etika, serta profesionalisma yang tinggi dan menyumbang kepada Aspirasi Kebangsaan.

Engineer / Architect who has character and ethics, as well as high professionalism and contributes to the National Aspirations

PEO2

Jurutera/Arkitek yang kompeten dalam amalan bidang masing-masing bersesuaian dengan keperluan semasa dan masa depan.

Engineer / Architect who is competent in respective engineering practices that meets current and future needs.

PEO3

Jurutera/Arkitek yang mempunyai daya kreatif dan inovatif, ciri keusahawanan dan sifat kepimpinan yang bersifat global.

Engineer / Architect who has a creative and innovative, entrepreneurial and leadership qualities that are global.

**PROGRAM SENI BINA/
PROGRAMME OF ARCHITECTURE**

Hasil Pembelajaran Program/ Programme Outcomes (PO)

Kompetensi Senibina

HPP1 - Pengetahuan - Berupaya untuk memperoleh dan menerapkan pengetahuan Senibina yang memenuhi keperluan budaya, estetik, persekitaran dan keperluan teknikal.

HPP2 - Kemampanan dan Kesedaran Sosial - Berupaya untuk memahami isu-isu alam bina dalam konteks sosial, budaya dan tanggungjawab persekitaran untuk keperluan pembangunan yang mampan.

HPP3 - Praktikal dan Inovasi - Berupaya mengilhamkan inovasi dalam reka-cipta seni bina yang responsif terhadap budaya, estetik, persekitaran dan keperluan teknikal.

Ciri-Ciri Umum

HPP4 - Komunikasi - Berupaya untuk berkomunikasi mengenai idea-idea reka-bentuk dan penyelesaian reka bentuk yang berkesan dalam komuniti senibina dan masyarakat awam.

HPP5 - Kepimpinan dan Kerja Berpasukan - Berupaya untuk berfungsi secara berkesan sebagai individu dan ahli dalam pasukan pelbagai disiplin dengan kemampuan sebagai pemimpin.

HPP6 - Etika - Berupaya memahami dan menerapkan kod dan peraturan alam bina yang berkaitan dengan konteks serta praktis tempatan.

HPP7 - Keusahawanan - Berupaya memahami dan melaksanakan prinsip asas keusahawanan.

HPP8 - Pembelajaran Sepanjang Hayat - Berupaya untuk berdikari dan berke-mahiran dalam pembelajaran sepanjang hayat.

Struktur Kursus
Course Structure
Sains Seni Bina/ *Architectural Science*

Semester	Kod Kursus/ <i>Course Code</i>	Kategori/ <i>Category</i>	Nama Kursus/ <i>Course Title</i>
I	LMCW2163/ LMCWXXX3	CW	Tamadun Islam dan Tamadun Asia- Warganegara <i>Islamic and Asian Civilisation</i> Pengajian Malaysia 3-Bukan Warganegara
	LMCE1042	C2	<i>Breakthrough English (MUET Band 1 & 2)</i> Kursus Prasyarat Nota : Pelajar perlu lulus kursus ini sebelum dibenarkan mengambil kursus LMCE1062. Sekiranya gagal, pelajar perlu mengulang semula kursus, sebelum dibenarkan mengambil kursus yang berikutnya.
	LMCE1062 LMCE1072 LMCE1082	C2	<i>Academic Interactions (MUET Band 3)</i> <i>Academic Literacy (MUET Band 4)</i> <i>Page To Stage (MUET Band 5 & 6)</i>
	KKSB1113	C1	Sejarah Senibina <i>History Architecture</i>
	KKSB1116	WJ	Rekabentuk Senibina I <i>Architectural Design I</i>
	KKSB1162	WJ	Komunikasi Grafik Senibina <i>Architectural Graphics Communication</i>
	KKSB1273	C5	Teknologi Binaan dan Bahan I <i>Construction of Technology and Material I</i>
	Mana-mana Kursus Citra Luar	C6	Citra Kekeluargaan, Kesihatan dan Gaya Hidup (Kursus Luar Fakulti)

II	LMCW1022	CW	Asas Keusahawanan dan Inovasi <i>Entrepreneurship and Innovation Base</i>
	LMCK1621	C1	Etika dan Profesional <i>Ethical and Professional</i>
	LMCE1052	C2	<i>Bridging English (MUET Band 1 & 2)</i> Nota : Kursus ini hanya ditawarkan untuk pelajar yang telah lulus kursus <i>LMCE1042 Breakthrough English (MUET Band 1)</i>
	KKSB1122	C3	Struktur I <i>Structure I</i>
	KKSB1216	WJ	Rekabentuk Senibina II <i>Architectural Design II</i>
	KKSB1212	WJ	Senibina Identiti Kebangsaan <i>Architecture of National Identity</i>
	KKSB1213	WJ	Kemudahan Bangunan I <i>Building Services I</i>
	KKSB1272	WJ	Sains Persekitaran I <i>Environmental Science I</i>
III	LMCRXXX2	C6	<i>Kursus Luar Fakulti</i>
	LMCW2022	CW	Pengurusan dan Analitik Data <i>Data Management and Analytic</i>
	LMCE1062 LMCE2082 LMCE2092	C2	<i>Academic Interactions (MUET Band 1 & 2)</i> <i>Pro Talk English (MUET Band 3)</i> <i>Speak To Persuade (MUET Band 4)</i>
	KKSB2118	WJ	Rekabentuk Senibina III <i>Architectural Design III</i>
	KKSB2122	WJ	Struktur II <i>Structure II</i>
	KKSB2153	WJ	Teknologi Binaan dan Bahan II <i>Construction of Technology and Material II</i>
	KKSB2142 KKSB2162	P	(Pilih SATU kursus sahaja) Pengenalan Senibina Landskap <i>Introduction of Landscape Architecture</i> Pengenalan Penilaian Skapbandar <i>Townscape Introduction</i>

IV	LMCW2173/ LMCMXXX3	CW	Hubungan Etnik-Warganegara <i>Ethnic Relation</i> Bahasa Melayu Komunikasi 2- Bukan Warganegara
	KKSB2123	WJ	Aplikasi Komputer Senibina <i>Architectural Computer Application</i>
	KKSB2218	WJ	Rekabentuk Senibina IV <i>Architectural Design IV</i>
	KKSB2273	WJ	Lukisan Terukur <i>Measured Drawing</i>
	KKSB2282	WJ	Sains Persekitaran II <i>Environmental Science II</i>
Intersesi	KKKF3066	WF	Latihan Industri <i>Industrial Training</i>
V	LMCE3051 LMCE3061 LMCE3071	C2	<i>Let's Get Talking (MUET Band 1 & 2)</i> <i>Corporate Storytelling (MUET Band 3)</i> <i>Professional Communication</i> <i>(MUET Band 4)</i>
	KKSB3118	WJ	Rekabentuk Senibina V <i>Architectural Design V</i>
	KKSB3123	WJ	Lukisan Kerja Seni Bina <i>Architectural Working Drawing</i>
	KKSB3163	WJ	Teknologi Binaan dan Bahan III <i>Construction Technology and Material III</i>
	KKSB3173	WJ	Kemudahan Bangunan II <i>Building Services II</i>
	KKSB3262	WJ	Teori dan Idea Senibina <i>The Theory and Idea of Architecture</i>
VI	KKSB3228	WJ	Rekabentuk Senibina VI <i>Architectural Design VI</i>
	KKSB3233	WJ	Pengajian Topikal <i>Topical Study</i>
	KKSB3243	C4	Keusahawanan <i>Entrepreneurship</i>
	KKSB3253	WF	Amalan Profesional <i>Professional Practice</i>

Kategori/Category

- WU - Kursus Wajib Universiti/ *University Courses*
- WF - Kursus Wajib Fakulti / *Faculty Courses*
- WJ - Kursus Wajib Jabatan / *Department Courses*
- P - Kursus Pilihan / *Elective Courses*
- CK - Kursus CITRA Kompetensi / *CITRA Competency Course*
- CW - Kursus CITRA Wajib / *CITRA Compulsory Course*
- C1-C6 - Kursus CITRA Rentas / *CITRA General Education*

Silibus Kursus

Courses Syllabus

KKSB1113 Sejarah Seni Bina **Architecture History**

Kursus ini terlebih dahulu membincangkan mengenai sejarah dan peradaban senibina warisan di Alam Melayu dengan memberikan tumpuan kepada senibina warisan Melayu di Semenanjung Tanah Melayu. Pendekatan perbincangan dibuat melalui dua cara, pertama melalui penglihatan kepada hasil dan warisan masyarakat silam serta yang kedua melalui pendekatan yang melihat kepada nilai dan asas pemikiran yang wujud dalam senibina itu sendiri. Kursus ini berusaha untuk memperkenalkan pelbagai rahsia yang tersurat dan tersirat disebalik penghasilan senibina warisan Rumah Melayu yang merupakan antara contoh senibina warisan terbaik di Alam Melayu. Perbincangan juga akan dibuat bagi mengenalpasti asas-asas pemikiran pembangunan senibina warisan Rumah Melayu yang telah berjaya menepati pelbagai kehendak kehidupan kepada manusia dan menjadi contoh kepada senibina yang bergagaskan ekologi serta merupakan contoh senibina moden yang bitara untuk diterapkan pada pemikiran senibina masa kini di Malaysia. Kursus ini seterusnya membincangkan mengenai sejarah serta peradaban senibina awal di Mesir dan Eropah di mana peradaban tersebut telah mempengaruhi pembangunan sejarah senibina terkemudian. Di samping itu, sejarah senibina awal masyarakat di Timur Tengah, India, China dan Asia Tenggara juga dibincangkan untuk perbandingan. Tajuk perbincangan menyentuh aspek-aspek rekabentuk, kesenian dan kebudayaan serta teknologi yang telah digunakan dalam pembangunan pelbagai jenis senibina pada era dan di lokasi yang berbeza. Di akhir kursus dimuatkan topik senibina pra-merdeka di Malaysia sewaktu era kolonial dan imigrasi kaum yang menerima banyak pengaruh rekabentuk senibina luar seperti yang diberikan pendedahan sebelum ini.

This course first discusses the history and civilisation in the Malay heritage architecture by focusing on the Malay architectural heritage in the Malay Peninsula. Presentation approach is made in two ways, the first is through the observation of legacy and heritage from the precedent society and the second is through an approach that looks upon the value and basic idea

inherent in the architecture itself. This course seeks to unveil the letter and spirit behind the architectural heritage of the Malay houses, which are among the finest examples of Malay architectural heritage. Discussions will be conducted to identify the basic thinking in the development of Malay House heritage architecture that has managed to meet the various needs of human life and become an example to the ecological-oriented architecture and besides being the example of niche modern architecture to be applied to the present architectural thinking in Malaysia. This course then discusses the history and preliminary architectural civilisation in Egypt and Europe which had influenced the development of later architectural history. In addition, the early architectural history of the community in the Middle East, India, China and Southeast Asia are also discussed for comparison. Discussion touches on aspects such as design, art and culture as well as the technology that are adopted in the development of various types of architecture in the different era and location. At the end of the course, there are topics which include pre-independent architecture design in Malaysia during the colonial era and ethnic immigration that received a lot of influence from outside as revealed before.

Pra-Keperluan (jika ada): Tiada
Pre-requisite (if any): None

Bacaan Asas:

Reference:

- Leach, Andrew. 2010. *What is Architectural History?* Cambridge: Polity Press.
- Fletcher.B; Cruickhank.D; Saint.A. Sir Banister Fletcher's *A History of Architecture*.1996. Architecture Press.London.
- Wodehouse.L;Moffet.M;Fazio.M. *A World History of Architecture*. 2003. McGraw Hill.
- Mohamad Tajuddin Mohamad Rasdi, Kamaruddin Mohd. Ali, Syed Ahmad Iskandar, Syed Ariffin, Ra'alah Mohamad & GurupiahMursib,2004,*Warisan Seni Bina Rumah-rumah Tradisi, Skudai Johor, Malaysia*: PenerbitUniversitiTeknologiMalaysia.
- Lim Jee Yuan, 1987, *The Malay House: Rediscovering Malaysia's Indigenous Shelter System*, Pulau Pinang, Malaysia : Institut Masyarakat.
- Abdul Halim Nasir & Wan Hashim Wan The, 1996, *The Traditional Malay House*, Shah Alam, Selangor Malaysia : Penerbit Fajar Bakti Sdn. Bhd.

Hasil Pembelajaran

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus Course Outcomes (CO)
1	Menyatakan perbezaan antara senibina yang telah dibangunkan di Alam Melayu dan di luar negara <i>Distinguish the architecture developed in the Malay land and abroad</i>
2	Mengkaji semula perkembangan rekabentuk senibina mengikut peredaran zaman dan tempat <i>Examine the development of architectural design over time and place.</i>
3	Membentangkan pertalian erat di antara senibina, teknologi dan kesenian <i>Present the close relationship between architecture, technology and arts.</i>
4	Menganalisis pengaruh cuaca, kehadiran bahan binaan, teknologi, budaya dan ekonomi di sesuatu tempat dalam membezakan dan membentuk identiti gayarupa senibina sejak zaman berzaman <i>Analyse the effects of weather, construction materials, technology, culture and economy in particular place in distinguishing and shaping the identity of architectural styles for ages</i>

KKSB1116 Rekabentuk Seni Bina I

Architectural Design I

Kursus Reka Bentuk Seni Bina I merupakan teras dalam pengajian seni bina. Kandungan kursus memberikan penekanan kepada pemahaman dasar yang menjurus kepada unsur dan prinsip asas dalam reka bentuk. Pelajar akan meneroka komponen asas reka bentuk termasuk daya tanggapan tampakan, garisan, jalinan, permukaan datar, warna, ruang, penyusunan, ukuran dan perkadaran menerusi penghayatan, pencerakinan dan pemahaman. Pelajar juga akan didedahkan kepada pengetahuan mengenai ukuran anggota manusia (anthropometric) dan keperluannya dalam menghasilkan rekabentuk.

Architectural Design I Course is the core of architectural study. The course emphasises the basic understanding that lead to the basic elements and principles in design. Students will explore the basic components in design which include visual perceptual force, lines, texture, flat surface, colour, space, composition, size and proportion through appreciation, assaying and understanding. Students will be exposed to knowledge regarding human measurement (anthropometric) and its need in producing design.

Pra-Keperluan (jika ada): Tiada
Pre-requisite (if any): None

Bacaan Asas:**Reference:**

- Francis D. K. Ching (Author). 2014. *Architecture: Form, Space, and Order Kindle Edition*. Wiley. 4th edition.
- Laseau, P. 2000. *Graphic Thinking for Architects and Designers (3rd. Edition)*. New Jersey: John Wiley & Sons.
- Goldman, G & Sound, S. 1996. *Architectural Graphic: Traditional and Digital Communication*. London: Prentice Hall.
- Brawne, J. 1992. *From Idea to Building*. United Kingdom: Butterworth.
- Malnar, J. 1991. *The Interior Dimension: A Theoretical Approach to Enclosed Space*. New York: Van Nostrand Reinhold.

Hasil Pembelajaran**Course Outcomes**

Bil No.	Hasil Pembelajaran Kursus Course Outcomes (CO)
1	Membincangkan prinsip asas reka bentuk dan elemen asas seni bina. <i>Discuss the basic principles of design and the basic elements of architecture.</i>
2	Melakarkan kerja lakaran tangan asas dalam bentuk 2D dan 3D serta penghasilan model. <i>Sketch basic hand work in forms of 2D and 3D as well as production model.</i>
3	Mempamerkan rekabentuk secara penerokaan (explorative) dalam projek pengenalan identiti kebangsaan. <i>Demonstrate the design in an explorative way in the introduction of national identity project.</i>
4	Mengadaptasi skala ukuran anggota manusia (anthropometric) dalam reka bentuk. <i>Adapting human measurement scale (anthropometric) in design.</i>

KKSB1162 Komunikasi Grafik Seni Bina***Architectural Graphics Communications***

Kursus ini memberikan penekanan kepada pemahaman dasar yang menjurus kepada unsur dan prinsip asas dalam reka bentuk. Pelajar akan meneroka komponen asas reka bentuk termasuk daya tanggapan tampakan, garisan, jalinan, permukaan datar, warna, ruang, penyusunan, ukuran dan perkadaran menerusi penghayatan, pencerakinan dan pemahaman. Pelajar juga akan didedahkan kepada pengetahuan mengenai ukuran anggota manusia (anthropometric) dan keperluannya dalam menghasilkan rekabentuk.

The course emphasises the basic understanding that lead to the design elements and principles. Students will explore the basic components of design which include force in visual perception, lines, texture, flat surface,

colour, space, composition, size and proportion through appreciation, assaying and understanding. Students will be exposed to knowledge regarding human body measurement (anthropometric) and its usage in producing design.

Pra-Keperluan (jika ada): Tiada

Pre-requisite (if any): None

Bacaan Asas:

Reference:

- Francis D. K. Ching (Author). 2015. *Architectural Graphics Kindle Edition*. Wiley.
- Rendow Yee (Author). 2012. *Architectural Drawing: A Visual Compendium of Types and Methods 4th Edition*. Wiley.
- Ching, Francis D.K., 2003. *Architectural Graphics : Fourth Edition*. John Wiley & Sons, Canada
- Yee, R. 2007. *Architectural Drawing A Visual Compendium of Types and Methods, 3rd Edition*. John Wiley & Sons, Canada.
- Wallschlaeger, C. & Busic-Snyder, C. 1992. *Basic Visual Concepts and Principles for Artists, Architects and Designers*. McGraw Hill, USA
- Saleh Uddin, M. 1999. *Hybrid Drawing Techniques by Contemporary Architects and Designers*. New York: John Wiley & Sons

Hasil Pembelajaran

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus Course Outcomes (CO)
1	Mengenalpasti teknik-teknik di dalam aspek komunikasi dan persembahan visual dengan tangan (manual) <i>Identify techniques in terms of communication and visual presentation by hand (manual)</i>
2	Mengaplikasi pengetahuan dan kemahiran asas di dalam komunikasi visual <i>Apply basic knowledge and skills in visual communication</i>
3	Mereka bentuk lukisan persembahan kepada tahap yang digunakan di dalam industri <i>Design presentation drawing to the level used in the industry</i>

KKSB1212 Senibina Identiti Kebangsaan ***Architecture of National Identity***

Kursus ini akan membincangkan mengenai isu identiti seni bina kebangsaan di Eropah, Amerika dan Malaysia. Pembinaan identiti seni bina kebangsaan merupakan cabaran yang paling besar dalam era seni bina moden dan pasca-modern. Pembentukan seni bina yang menolak unsur budaya setempat bukan sahaja menghakis identiti masyarakatnya tetapi juga telah mewujudkan masalah yang lebih serius seperti ancaman keselamatan, gangguan kesihatan, krisis tenaga dan sebagainya. Agenda mewujudkan kembali identiti seni bina kebangsaan merupakan sebuah seruan agar seni bina perlu responsif kepada semangat tempat yang bukan sahaja mampu mencerminkan tempat tersebut dalam penampilannya tetapi juga berupaya mensejahterakan manusia dan alambina di sekitarnya.

This course will focus on the issue of national identity architecture in Europe, America and Malaysia. The establishment of the national identity architecture is the biggest challenge in the modern and post-modern architectural era. The formation of architectural elements that rejects the local culture not only erodes the people's identity but has also created a more serious problem such as security threat, health issue, energy crisis and so on. The agenda to create the national identity architecture is an urge for the architecture to be responsive to the local spirit that is not only reflect the place in its appearance but also seeks the welfare of mankind and the surrounding buildings.

Pra-Keperluan (jika ada): Tiada
Pre-requisite (if any): None

Bacaan Asas:
Reference:

- Kamarul Afizi Kosman. 2009. *Krisis Wacana Identiti Seni Bina Malaysia*. Penerbit UKM. Bangi
- Kamarul Afizi Kosman, Lim Yong Long, Azimin Samsul Mohd Tazilan, Mohammad Tajuddin Mohamad Rasdi. 2008. *50 Tahun Perumahan Awam di Kuala Lumpur*. ATMA UKM. Bangi.
- Mohammad Tajuddin Mohamad Rasdi.2003. *Crisis in Islamic Architecture*. The KALAM Papers. UTM.
- Mohammad Tajuddin Mohamad Rasdi.2003. *Crisis in Public Architecture*. The KALAM Papers. UTM.

- Mohammad Tajuddin Mohamad Rasdi, Ghofar Rozaq Nazila.2003. *Housing Crisis In Malaysia; Back to a Humanistic Agenda*. The KALAM Papers. UTM.
- Mohammad Tajuddin Mohamad Rasdi. 2001.*Identiti Seni Bina Malaysia: Konsep terhadap pendekatan rekabentuk*. Penerbit UTM. Sekudai.
- Robert McCarter.1997. Frank Lloyd *Wright Architect*. Phaidon. London.
- Bauhaus Archiv, Droste.M. 1990..Bauhaus 1919-1933. Berlin. Bauhaus Archiv *Museum fur Geltaltung*.
- Cumming, Elizebeth and Kaplan, Wendy. 1995. *The Art And Craft Movement*. Thames and Hudson.
- Burchardt, Lucius., translated by Pearl Sanders. 1979. The Werkbund: *Studies In The History And Ideology Of The Deutcher Werkbund 1907 – 1933*. The Design Council

Hasil Pembelajaran

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus Course Outcomes (CO)
1	Mengenalpasti makna dan bentuk pelaksanaan identiti seni bina kebangsaan. <i>Identify the meaning and form of national architectural identity.</i>
2	Menjelaskan sejarah perjuangan identiti seni bina kebangsaan di Barat dan Malaysia. <i>Explain the history of the struggle for national architectural identity in Western and Malaysia.</i>
3	Merungkai kesedaran terhadap bentuk krisis dan implikasinya kepada masyarakat serta alambina. Pelajar akan mampu melakukan penilaian bentuk-bentuk krisis yang berlaku melalui pembacaan, perbincangan, sesi kerja lapangan dan projek reka bentuk. <i>Raise awareness of the crisis and its implication on society and architecture. Students will be able to assess the forms of crisis that occurred through reading, discussion, field work sessions and project design.</i>

KKSB1213 Kemudahan Bangunan I *Building Services I*

Kemudahan Bangunan I memberi penekanan kepada sistem asas kemudahan bangunan mudah, iaitu sistem bekalan air, sistem bekalan elektrik, sistem sanitasi, sistem saliran dan pembetulan, sistem telekomunikasi, sistem bekalan gas, sistem pembuangan sampah dan sistem pencegahan kebakaran. Pendedahan tertumpu kepada keperluan reka bentuk bagi bangunan mudah.

Building Services I emphasise the basic system of simple building features services, namely water supply system, electricity supply system, sanitation system, drainage and sewerage system, telecommunication system, gas supply

system, sewage systems and fire retention system. Exposure is stressed on the design requirement for simple buildings.

Pra-Keperluan (jika ada): Tiada

Pre-requisite (if any): None

Bacaan Asas:

Reference:

- Jackie Portman. 2014. *Building Services Design Management 1st Edition*. Wiley-Blackwell
- Roger Greeno, Fred Hall (Author). 2015. *Building Services Handbook 8th Edition*. Routledge
- Ambrose, J & Ollswang, J.E. 1995. *Simplified Design For Building Sound Control*. New York: John Wiley & Sons, Inc.
- Brown & DeKay 2001. *Sun, Wind & Light : Architectural Design Strategies. 2nd Edition*, New York: John Wiley & Sons.
- Hall, F. 1992. *Building Services & Equipment*. London:Butterworth.

Hasil Pembelajaran

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus Course Outcomes (CO)
1	Mengenalpasti asas kemudahan bangunan. <i>Identify the basic building services</i>
2	Menilai kewajaran terhadap pemilihan sesebuah sistem kemudahan bangunan bagi bangunan mudah <i>Assess the appropriateness of the selection of building service system for simple building</i>
3	Mengaplikasikan sistem kemudahan bangunan dalam reka bentuk bangunan mudah <i>Apply building service system in the simple building design</i>

KKSB1216 Rekabentuk Seni Bina II Architecture Design II

Kursus Reka Bentuk Seni Bina II merupakan kesinambungan kepada program pengajian reka bentuk seni bina yang diajar pada semester sebelumnya. Kursus ini memberi kefahaman kepada pelajar tentang proses asas penghasilan reka bentuk seperti kajian latar belakang projek dan tapak dalam konteks setempat / kebangsaan. Kursus ini juga memberi penekanan kepada asas susun atur dan hubungkait ruang. Pelajar juga akan didedahkan kepada pengetahuan mengenai ukuran anggota manusia (anthropometric) dan kaitan antara ukuran anggota manusia dengan objek atau elemen reka bentuk (ergonomic).

Architectural Design II Course is a continuation of the architectural design study programme that is taught in the previous semester. This course is to provide students with the basic processes of design production such as study of project background and site in the local/national context. The course also emphasises the basic layout and space relationship. Students will be exposed to knowledge regarding human body measurement (anthropometric) and the relationship between human body measurement and object or design element (ergonomic).

Pra-Keperluan (jika ada): Rekabentuk Seni Bina I

Pre-requisite (if any): *Architectural Design I*

Bacaan Asas:

Reference:

Mark Karlen (Author), Rob Fleming (Author). 2016. *Space Planning Basics 4th Edition*. Wiley.

Pamela Buxton (Editor). 2015. *Metric Handbook: Planning and Design Data 5th Edition*. Routledge.

Francis D. K. Ching (Author). 2014. *Architecture: Form, Space, and Order Kindle Edition*. Wiley. 4th edition.

Laseau, P. 2000. *Graphic Thinking for Architects and Designers, 3rd Edition*. New Jersey: John Wiley & Sons

Duncan, R.I. 1996. *Architectural Graphic and Communication Problems*. Dubuque US: Kendall/Hunt Publishing Company.

Hasil Pembelajaran

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus Course Outcomes (CO)
1	Membuat sintesis terhadap proses asas penghasilan reka bentuk seperti kajian latar belakang projek dan tapak dalam konteks setempat / kebangsaan <i>Synthesise the basic processes of design production such as study of project background and site in the local/national context.</i>
2	Menghubung kait asas susun atur denganb ruang <i>Correlate the basic layout with space.</i>
3	Mengadaptasi skala ukuran anggota manusia (anthropometric) dan ergonomik dalam rekabentuk <i>Adapt the human body measurement scale (anthropometric) and ergonomic in design.</i>
4	Mempamerkan reka bentuk tektonik secara eksperimen <i>Display tectonic design in experimental way</i>
5	Mendemonstrasi lukisan dan keupayaan menghasilkan format asas lukisan seni bina <i>Design drawings and able to produce basic format of architectural drawings</i>
6	Menghasilka rekabentuk yang mengikut kehendak klien <i>Produce a design according to the client's need</i>

KKSB1272 Sains Persekitaran I

Environmental Science I

Sains Persekitaran I memberi penekanan kepada kesedaran terhadap kepentingan aspek sains persekitaran dalam konteks alam bina. Pelajar didedahkan dengan pengetahuan asas sains persekitaran, serta kesan negatif sekiranya aspek sains persekitaran tidak dititikberatkan dalam rekabentuk bangunan. Antara kandungan untuk Sains Persekitaran I adalah iklim global dan serantau, isu perubahan cuaca dan pemanasan bumi, pulau haba Bandar, sistem ekologi dan pencemaran alam sekitar, konsep bangunan pintar dan penjimatan tenaga serta tenaga keterbaharuan

Environmental Science I emphasises the awareness of the importance of environmental science aspect in the built environment context. Students are exposed to basic knowledge of environmental science, as well as negative effects if environmental science is not taken into account in the building design. Environmental Science I contents covers global and regional climate, climate change and global warming issues, urban heat island, ecological system and environmental pollution, the smart building concept and energy saving as well as renewable energy.

Pra-Keperluan (jika ada): Tiada
Pre-requisite (if any): None

Bacaan Asas:
Reference:

- Steven V. Szokolay (Author). 2014. *Introduction to Architectural Science: The Basis of Sustainable Design 3rd Edition*. Routledge.
- Mark DeKay (Author), G. Z. Brown. 2014. *Sun, Wind, and Light: Architectural Design Strategies 3rd Edition*. Wiley.
- William W. Braham & Daniel Willis. 2013. *Architecture and Energy: Performance and Style*, New York: Routledge.
- Jeremy Shere. 2013. *Renewable: The World-Changing Power of Alternative Energy*, New York: St. Martin's Press.
- John Glasson, Riki Therivel & Andrew Chadwick. 2012. *Introduction To Environmental Impact Assessment (Natural and Built Environment Series), 4th Edition*, New York: Routledge

Hasil Pembelajaran

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus <i>Course Outcomes (CO)</i>
1	Mengenalpasti kepentingan sains persekitaran dalam konteks alam bina <i>Determind the importance of environmental science in the built environment context</i>
2	Mengenalpasti konsep asas rekabentuk yang merangkumi aspek sains persekitaran <i>Determind the basic design concept that includes the environmental science aspects.</i>
3	Menganalisis kesan negatif sekiranya aspek sains persekitaran tidak diberi pertimbangan sewajarnya terhadap rekabentuk bangunan <i>Analyse the negative effects if environmental science is not given due consideration in building design.</i>
4	Menghubungkan kepentingan sains persekitaran dalam konteks alam bina <i>Integrate the importance of environmental science in the built environment context</i>

KKSB1273 Teknologi Binaan Dan Bahan I ***Technology of Construction and Materials I***

Kursus ini mendedahkan pelajar ke alam pembinaan, memberi pengenalan tentang teknologi binaan dan bahan dalam industri pembinaan; komponen-komponen asas pada bangunan; struktur bangunan; mekanik tanah dan faktor asas pengaruh kepada pemilihan asas bangunan merupakan antara tajuk utama dalam kursus ini. Pendedahan kepada agensi-agensi dan badan-badan yang terlibat dalam kawalan dan industri pembangunan serta pembinaan. Kursus ini juga memperkenalkan bahan-bahan binaan dan asas yang mempengaruhi pemilihannya. Keselamatan am di tapak binaan juga merupakan antara topik utama dalam kursus ini.

This course introduces students to the construction world, construction technology and materials in the construction industry; the basic building components; building structures; soil mechanics and fundamental factors affecting the selection of the building's foundation as the main topics in this course. Students are exposed to the agencies and bodies involved in the regulation, development and construction industry. This course also introduces building materials and the basis that influences the selection. General safety at construction site is also among the main topics in this course.

Pra-Keperluan (jika ada): Tiada
Pre-requisite (if any): None

Bacaan Asas:**Reference:**

- William P. Spence (Author), Eva Kultermann (Author). 2016. *Construction Materials, Methods and Techniques*. Delmar Cengage Learning
- Edward Allen (Author), Joseph Iano (Author). 2013. *Fundamentals of Building Construction: Materials and Methods 6th Edition*. Wiley
- Francis D. K. Ching, Cassandra Adams. 2001. *Building Construction Illustrated, 3rd Edition*. New York: John Wiley & Sons.
- Donald Watson, Trumbull, CT 2000 *Time-Saver Standards for Building Materials & Systems: Design Criteria and Selection Data, 1st Edition* McGraw Hill Co.
- Edward Allen, Joseph Iano, 2003 *Fundamentals of Building Construction: Materials and Methods, 4th Edition* John Wiley & Sons (Asia) Pte. Ltd

Hasil Pembelajaran**Course Outcomes**

Bil No.	Hasil Pembelajaran Kursus Course Outcomes (CO)
1	Mengenalpasti asas teknologi bahan dan binaan <i>Identify basic in material and construction technologies</i>
2	Mengenalpasti badan-badan dan agensi-agensi kawalan binaan dan pembangunan dan kaitan agensi tersebut dengan industri pembinaan <i>Identify construction regulatory bodies and agencies and the relation with the construction industry.</i>
3	Mengaitkan bahan binaan bangunan, struktur reka bentuk, pembinaan dan masalah kejuruteraan yang berkaitan dengan reka bentuk bangunan <i>Associate building construction materials, design structures, construction and engineering issues related to the building design</i>

KKSB2118 Rekabentuk Seni Bina III
Architectural Design III

Kursus Rekabentuk Senibina III mendedahkan pelajar kepada kepentingan konteks kebudayaan setempat dalam rekabentuk seni bina. Kursus ini juga memberi penekanan kepada penilaian keperluan pengguna dari aspek ruang, fungsi, sosial dan persekitaran. Selain itu, penekanan juga diberikan kepada penggunaan bahan dan struktur asas senibina dalam menghasilkan rekabentuk. Pelajar juga akan didedahkan dengan kemahiran mengumpul data, menganalisa dan menentukan isu-isu berkaitan dengan reka bentuk.

Architectural Design III Course exposes students to the importance of the local cultural context in architectural design. The course also focuses on the assessment of user needs in terms of space, function, social and environment. In addition, emphasis is also given to the use of materials and the basic architectural structure in producing design. Students will be exposed to the skills such as data collection, analysis and determination of the design-related issues.

Pra-Keperluan (jika ada): KKSBB1216 Rekabentuk Seni Bina II
Pre-requisite (if any): KKSBB1216 *Architectural Design II*

Bacaan Asas:

Reference:

- Sim Van Der Ryn (Author), Richard Olsen (Editor). 2013. *Culture, Architecture and Nature: An Ecological Design Retrospective 1st Edition*. Routledge
- James A. LaGro Jr. (Author). 2013. *Site Analysis: Informing Context-Sensitive and Sustainable Site Planning and Design 3rd Edition*. Wiley.
- Norberg-Schulz, C. (1980). *Genius Loci: Towards a Phenomenology of Architecture*. London: Rizzoli.
- Taylor, B.B. (2003). *Architecture and Identity – Reconciling Cultural Values and Modern Design*. WW Norton
- Rasmussen, Steen Elier. (1993). *Experiencing Architecture. Massachusetts: MIT Press*.
- Sleeper H R., Hoke, J.R. and Ramsey, C.J. (1994). *Architectural Graphic Standards, 9th Edition*. New Jersey: John Wiley & Sons

Hasil Pembelajaran

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus Course Outcomes (CO)
1	Mempamerkan konteks kebudayaan setempat dalam rekabentuk seni bina <i>Display local cultural context in the architectural design</i>
2	Membuat sintesis terhadap pengumpulan dan penganalisan data serta menentukan isu-isu berkaitan dengan reka bentuk <i>Synthesise data collection and analysis and determine issues related to design</i>
3	Menghubung kait keperluan pengguna dari aspek ruang, fungsi, sosial dan persekitaran <i>Correlate the user needs in terms of space, function, social and environment</i>

4	Merekabentuk menggunakan bahan dan struktur asas seni bina <i>Design by using basic architectural structure and materials.</i>
5	Mempamerkan lukisan persembahan seni bina <i>Exhibiting architectural presentation drawings</i>

KKSB2122 Struktur II **Structure II**

Pelajar akan mempelajari tentang beban mati dan beban hidup, pengagihan beban ke atas papak sehala dan papak dua hala, ketentuan dan kestabilan, dayadaya dalam rasuk, dan seterusnya membina gambarajah daya ricih dan momen lentur. Di samping itu, pelajar akan diperkenalkan dengan konsep reka bentuk rasuk berdasarkan keupayaan keratan terhadap lenturan dan ricih serta menentukan pesongan rasuk. Teori asas analisis kelengkungan dalam reka bentuk tiang juga akan dipelajari dalam kursus ini. Pelajar akan didedahkan dengan kemahiran untuk mengaplikasikan konsep rule-of-thumbs dalam proses analisis.

Students will learn about the dead load and live load, load distribution on the one-way and slab and two-way slab, specificity and stability, beam forces, and then build diagrams for shear force and bending moment. In addition, students will be introduced to the beam design concept based on the sectional ability against bending and shear and determine beam deflection. The fundamental theory of the column bending analysis will also be studied in this course. Students will be exposed with the skills to apply concept of rule-of-thumbs in the analysis.

Pra-Keperluan (jika ada): Tiada
Pre-requisite (if any): None

Bacaan Asas: **Reference:**

- Edward Allen (Author), Joseph Iano (Author). 2013. *Fundamentals of Building Construction: Materials and Methods 6th Edition*. Wiley.
- Ramsey Dabby (Author), Ashwani Bedi (Author). 2012. *Structure for Architects: A Primer 1st Edition*. Wiley.
- Hibbeler, R. C. & Yap, K. B. 2013. *Mechanics for Engineers: Statics. 13th Ed.* Singapore: Pearson.
- Ching, F. D. K. 2008. *Building Construction Illustrated – 4th Ed.* New Jersey: John Wiley & Sons. (ISBN: 978-0-470-08781-7).

Mohd. Rahim Karim. Kuala Lumpur: Dewan Bahasa dan Pustaka. Gauld, Bryan J.B. 1992. *Struktur Untuk Arkitek. Edisi ke-2*. Terj. Supiah Shamsuddin. Kuala Lumpur: Dewan Bahasa dan Pustaka.

Hasil Pembelajaran

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus Course Outcomes (CO)
1	Menunjukkan konsep asas beban mati dan beban hidup serta menganalisis pengagihan beban pada papak <i>Shows the basic concept of dead load and live load and analyse load distribution on the slab.</i>
2	Menganalisis daya-daya dalam rasuk dan seterusnya membina gambarajah daya ricih dan momen lentur <i>Analyse beam forces and then build shear force and bending moment diagram.</i>
3	Mereka bentuk rasuk berdasarkan keupayaan keratan terhadap lenturan dan ricih, dan mengaplikasikan formula pesongan rasuk <i>Design beams based on its section properties against bending and shear, and apply the deflection formula.</i>
4	Menganalisis dan mengaplikasikan teori asas analisis kelengkungan dalam reka bentuk tiang <i>Analyse and apply the basic theory of curvature analysis in the pillar design.</i>

KKSB2123 Aplikasi Komputer Seni Bina Architecture Computer Application

Kursus ini bertujuan memberi pendedahan dan kemahiran asas kepada pelajar menggunakan aplikasi perisian komputer yang berkaitan dengan lukisan, pemodelan 3D dan komunikasi visual di dalam senibina. Pelajar didedahkan dengan kemahiran asas menghasilkan lukisan 2D dan 3D serta teknik persembahan 2D dan 3D menggunakan perisian komputer.

This course aims to provide exposure and basic skills to students by using computer software applications that are related to drafting 3D modelling and visual communication in architecture. Students are exposed to basic skills and techniques in producing 2D and 3D drawings as well as 2D and 3D presentations by using computer software.

Pra-Keperluan (jika ada): Tiada
Pre-requisite (if any) : None

Bacaan Asas:**Reference:**

- Andrew Bernheimer (Editor). 2015. *Timber in the City*. ORO Editions
- Virginia McLeod (Author). 2015. *Detail in Contemporary Timber Architecture*. Laurence King Publishing.
- George Omura & Brian C. Benton. 2013. *Mastering AutoCAD 2014 and AutoCAD LT 2014: Autodesk Official Press*. Indiana: John Wiley & Sons
- Barbara Brundage. 2013. *Photoshop Elements 12: The Missing Manual Paperback*. Sebastopol: O Reilly Inc.
- Adobe Creative Team. 2012. *Adobe Photoshop CS6 Classroom in a Book*. USA: Adobe Systems Incorporated.

Hasil Pembelajaran**Course Outcomes**

Bil No.	Hasil Pembelajaran Kursus Course Outcome (CO)
1	Mengenalpasti asas komunikasi visual komputer dan media berkaitan seni bina <i>Identify basic computer visual communication and media that is related to architecture</i>
2	Menghasilkan lukisan 2D menggunakan perisian computer <i>Generate 2D drawings by using computer software</i>
3	Mempamerkan teknik persembahan 2D dan 3D menggunakan perisian computer <i>Display 2D and 3D presentation technique by using computer software</i>

KKSB2142 Pengenalan Seni Bina Landskap***Introduction of Landscape Architecture***

Kursus ini bertujuan untuk memberikan pengenalan serta pendedahan asas terhadap alam lingkungan luaran bangunan iaitu senibina landskap. Kursus senibina landskap ini merangkumi pengenalan dan sejarah senibina landskap dan seterusnya perkara-perkara asas dalam senibina landskap. Konsep, teori, elemen dan asas grafik dalam senibina landskap diperkenalkan kepada pelajar. Elemenelemen senibina landskap lembut dan landskap kejur disentuh dengan terperinci bersama contoh-contoh yang bersesuaian. Kursus ini juga menyentuh dasar dan garis panduan landskap di negara ini. Ia juga turut menyentuh pendekatan-pendekatan rekabentuk senibina landskap yang lestari serta mementingkan keserasian dengan konteks setempat.

The course aims to provide an introduction and basic exposure to the building exterior enclosure that is landscape architecture. The course covers the introduction and history of landscape architecture and

the basic things in landscape architecture. Concepts, theories and basic graphic elements in landscape architecture are introduced to the students. Elements of soft and hard landscape architecture are covered in detail with appropriate examples. The course will also touch basis and guidelines of landscape in this country. It also touches the sustainable landscape architecture design approaches and emphasis compatibility with local context.

Pra-Keperluan (jika ada): Tiada

Pre-requisite (if any) : None

Bacaan Asas:

Reference:

- Pomeroy, Jason. 2014. *The Skycourt and Skygarden: Greening the Urban Habitat*, New York: Routledge.
- Loidl, H. & Bernard, S. 2014. *Opening Spaces: Design as Landscape Architecture*. Besel: Birkhauser Verlag
- Charles Waldheim (Author). 2016. *Landscape as Urbanism: A General Theory*. Princeton University Press.
- Bruce Sharky (Author). 2016. *Thinking about Landscape Architecture: Principles of a Design Profession for the 21st Century*. Routledge.
- Grant, W. R. 2002. *Landscape Graphics -Plan, Section and Perspectives Drawing of Landscape Spaces*. New York: Watson - Guptill Publication.

Hasil Pembelajaran

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus Course Outcomes (CO)
1	Mengaplikasikan konsep dan teori asas dalam senibina landskap <i>Apply the basic concepts and theories in landscape architecture.</i>
2	Menyediakan maklumat asas untuk keperluan rekabentuk senibina landskap. <i>Prepare basic information in producing architectural landscape design.</i>
3	Mempamerkan pengetahuan senibina landskap dan teknik grafik dalam rekabentuk. <i>Showing architectural landscape knowledge and graphic technique in design.</i>

KKSB2153 Teknologi Binaan Dan Bahan II ***Technology of Construction And Material II***

Kursus ini bertujuan untuk memperkenalkan kayu sebagai bahan binaan serta teknologi pembinaan kayu secara terperinci. Pelajar akan diterangkan dengan asas topik utama dan diikuti dengan perbincangan terperinci, contoh penggunaan bahan tersebut dan teknologi berkaitan serta teknologi termaju berkaitan dengan bahan binaan kayu akan dibincangkan. Antara Topik Utama yang akan dibicarakan termasuk ciri-ciri kayu dan rawatan kepada kecacatan kayu, tanggam dalam binaan bangunan kayu, prinsip reka bentuk struktur kayu, jenis-jenis kemasan kayu dan butiran pembinaan kayu.

The course aims to introduce wood as building material and wood construction technology in detail. Students will be explained with the main topics and followed by detailed discussion, with examples of the use of such materials and related technologies as well as advanced technology related to wood construction materials. Among the main topics to be discussed include the wood characteristics and treatment to the wood defects, joints in the wooden building construction, wooden structure design principles, types of wood finishes and wood construction specification.

Pra-Keperluan (jika ada)/ *Pre-requisite (if any):*

KKSB 1273 Teknologi Binaan dan Bahan I
Technology of Construction and Material I

Bacaan Asas:

Reference:

- Andrew Bernheimer (Editor). 2015. *Timber in the City*. ORO Editions
- Virginia McLeod (Author). 2015. *Detail in Contemporary Timber Architecture*. Laurence King Publishing.
- Medan Mehta Ph.D., Walter Scarborough and Diane Armpriest. 2013. *Building Construction: Principles, Materials, & Systems*, 2nd Edition, Prentice Hall
- Francis D. K. Ching. 2014. *Building Construction Illustrated*. 5th Edition, New Jersey: John Wiley & Sons.
- American Institute of Timber Construction (AITC) and Jeff D. Linville. 2012. *Timber Construction Manual*, 6th Edition, New Jersey: John Wiley & Sons.

Hasil Pembelajaran

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus Course Outcomes (CO)
1	Membincangkan elemen kayu sebagai bahan binaan dengan terperinci <i>Discuss elements of wood as building material in detail</i>
3	Mengaplikasikan teknologi binaan kayu dan teknologi berkaitan dengan terperinci <i>Apply wood construction technology and related technology in detail.</i>
5	Menghasilkan perubahan idea dan reka bentuk inovatif berasaskan binaan kayu <i>Produce ideas and innovative design made of wood</i>

KKSB2162 Pengenalan Skapbandar ***Townscape Introduction***

Kursus ini bertujuan untuk memberikan pengenalan serta pendedahan asas terhadap teori dan penghayatan/ penilaian skapbandar (townscape). Kursus ini merangkumi pengajian tentang konsep asas skapbandar serta kajian-kajian tapak yang difokuskan terhadap skapbandar tempatan. Penekanan diberikan terhadap kajian dan penghayatan skapbandar seperti yang diperkenalkan oleh Gordon Cullen di dalam bukunya, *The Concise Townscape*. Turut diperkenalkan adalah prinsip-prinsip rekabentuk bandar atau alam bina yang mengenengahkan nilai-nilai keinsanan dan kontekstualisme seperti yang diutarakan oleh Christopher Alexander (di dalam buku, *The Pattern Language*), Kevin Lynch, Colin Rowe, Thomas L. Schumacher dan sebagainya. Walaubagaimana pun, kajian yang akan dijalankan oleh pelajar di dalam kursus ini tertumpu kepada konteks perbandaran di Malaysia terutamanya skapbandar-skapbandar yang mengandungi elemen-elemen kemanusiaan, interaksi sosial dan identiti setempat.

The course aims to provide an introduction and basic exposure to the theory and townscape appreciation/valuation. This course covers the study of townscape basic concepts and research sites focused on local townscape. Emphasis is given to the study and appreciation of townscape as introduced by Gordon Cullen in his book, The Concise Townscape. Also introduced are the principles of urban design and built environment that highlights the values of humanity and contextualism as expressed by Christopher Alexander (in his book, The Pattern Language), Kevin Lynch, Colin Rowe, Thomas L. Schumacher and others. However, studies which will be undertaken by students in this course focused on the township context in Malaysia, especially townscapes that are consisted of humanitarian, social interaction and local identity elements.

Pra-Keperluan (jika ada): Tiada
Pre-requisite (if any) : None

Bacaan Asas:

Reference:

- Campanario, Gabriel. 2014. *The Urban Sketching Handbook: People and Motion*. Massachusetts: Quarry Book.
- Holmes, Marc Taro. 2014. *The Urban Sketcher: Techniques for Seeing and Drawing on Location*. Ohio: North Light Books.
- Cullen, Gordon. 1996. *The Concise Townscape*, Architectural Press. Oxford.
- Alexander, C. et al. 1977. *A Pattern Language*. New York: Oxford University Press.
- Rowe, C. & Koetter, F. 1975. 'Collage City'. *Architectural Review*. (diterbitkan semula dalam Kate Nesbitt. 1996. *Theorizing a New Agenda for Architecture*. New York: Princeton Architecture Press).
- Schumacher, T.L. 1971. 'Contextualism: Urban Ideals + Deformations'. Casabella. (diterbitkan semula dalam Kate Nesbitt. 1996. *Theorizing a New Agenda for Architecture*. New York: Princeton Architecture Press).

Hasil Pembelajaran

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus Course Outcome (CO)
1	Mengaplikasikan konsep dan teori asas skapbandar <i>Apply the townscape basic concepts and theories.</i>
2	Mengaplikasikan kaedah penghayatan/ penilaian skapbandar <i>Apply the townscape appreciation/valuation method.</i>
3	Mengaplikasikan teknik grafik yang berkesan dalam pembentangan kajian skapbandar <i>Apply an effective graphic techniques in the townscape research presentation.</i>

KKSB2218 Rekabentuk Senibina IV
Architectural Design IV

Kursus Rekabentuk Senibina IV memperkenalkan pelajar kepada rekabentuk bangunan mapan tempatan serta kepentingan piawaian bangunan. Pelajar didedahkan kepada permasalahan yang berkaitan dengan persekitaran dan kemanusiaan melalui latihan penilaian ilmiah terhadap tapak dan masyarakat setempat. Latihan ini juga mendedahkan pelajar dengan kemahiran mengumpul data, menentukan isu-isu berkaitan, menganalisa dan membuat penilaian. Selain itu, kursus ini juga

memberi penekanan terhadap kepentingan penilaian keperluan pengguna dan masyarakat dari aspek ruang, fungsi, sosial dan persekitaran.

Architectural Design IV Course introduces students to the local sustainable building design as well as the importance of building standards. Students are exposed to the problems related to the environment and humanity through scientific evaluation practice on site and the local community. This practice also exposes students with the skills to collect data, determine related issues, analyse and make judgments. In addition, this course also emphasises the importance of assessing the needs of users and society in terms of space, function, social and environment.

Pra-Keperluan (jika ada)/ Pre-requisite (if any):

KKS2118 Rekabentuk Seni Bina III/ *Architectural Design III*

Bacaan Asas:

Reference :

- American Institute of Architects (Author), Dennis J. Hall (Editor). 2016. *Architectural Graphic Standards (Ramsey/Sleeper Architectural Graphic Standards Series)* 12th Edition. Wiley
- Roger H. Clark (Author), Michael Pause (Author). 2012. *Precedents in Architecture: Analytic Diagrams, Formative Ideas, and Partis* 4th Edition. John Wiley & Sons
- Abel, Chris. 2000. *Architecture and Identity: Responses to Cultural and Technological Changes*, 2nd. Edition. Oxford: Architecture Press.
- Clark, Roger H. 1996. *Precedents in Architecture*, 2nd. Edition. New York: John Wiley & Sons, Inc.
- Hock, J.Lim Tan (editor). 2001. *Transforming Traditions: Architecture in the ASEAN Countries*, The ASEAN Committee on Culture & Information.

Hasil Pembelajaran:

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus Course Outcomes (CO)
1	Mengaitkan piawaian bangunan dalam rekabentuk seni bina <i>Associate building standards in architectural design</i>
2	Memberi hujah tentang rekabentuk mampan tempatan <i>Give arguments on local sustainable design</i>

3	Membuat sintesis terhadap pengumpulan dan penganalisaan data, menentukan isu-isu berkaitan dan membuat penilaian <i>Synthesise data collection and analysis, determine the related issues and make judgments</i>
4	Mengadaptasi rekabentuk yang memenuhi keperluan pengguna dan masyarakat dari aspek ruang, fungsi, sosial dan persekitaran <i>Adapt the needs of users and society in terms of space, function, social and environment.</i>
5	Mempamerkan lukisan persembahan seni bina <i>Display architectural presentation drawings.</i>

KKSB2273 Lukisan Terukur ***Measured Drawing***

Kursus ini meliputi asas kerja lukisan terukur. Pelajar diperkenalkan tentang kaedah menjalankan kajian serta penaskahan pelbagai maklumat mengenai bangunan lama melalui pengukuran bangunan dan tanah, pemerhatian, kajian pustaka, kajian kepentingan sejarah dan sebagainya. Melalui kursus ini pelajar memperoleh kemahiran melakukan kerja-kerja lukisan terukur dan asas kerja lapangan dan mendokumentasikan secara berkumpulan.

This course covers the basics of measured drawing. Students are introduced to the methods of conducting studies and textualisation of various information regarding ancient building, through measured drawings, observation, literature review, study of historical significant and so on.

Pra-Keperluan (jika ada): Tiada
Pre-requisite (if any) : *None*

Bacaan Asas:
Reference:

- Peter Swallow (Author), Sophie Jackson (Author), Jonathan Godfrey (Author), Ross Dallas (Author), Andrew Westman (Author), David Watt (Author). 2016. *Measurement and Recording of Historic Buildings Kindle Edition*. Routledge
- Anderson, K. L. 1980. *Field Instructions for Measured Drawings. National Architectural and Engineering Record, Heritage Conservation and Recreation Service, Department of Interior. University of Michigan.*
- Burns, J. A., 2004. *Recording Historic Structures. Historic American Landscapes Survey*. John Wiley and Sons.
- Swallow, P. 2004. *Measurement and recording of historic buildings*. University of Michigan: Donhead

Hasil Pembelajaran

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus Course Outcome (CO)
1	Menganalisis maklumat yang didapati dari pelbagai sumber berkaitan <i>Analyse the information obtained from various related sources</i>
2	Mengadaptasi kerja-kerja lapangan di tapak sebenar. <i>Adaptation of fieldwork and measured drawings in real site.</i>
3	Menghasilkan dan membenteng dokumen lukisan terukur dan model bangunan dalam suatu kerja kumpulan. <i>Produce and present the measured drawing document and model building in group assignment.</i>

KKSB2282 Sains Persekitaran II

Environmental Science II

Sains persekitaran II memberi penekanan kepada pengetahuan asas tentang aspek sains persekitaran dalam rekabentuk bangunan. Pelajar didedahkan dengan pengetahuan asas mengenai teknik dan strategi untuk menghasilkan rekabentuk bangunan yang mengaplikasikan aspek sains persekitaran. Antara kandungan untuk sains persekitaran II adalah keselesaan terma, pengudaraan semulajadi bangunan, pencahayaan semulajadi dan buatan, rekabentuk akustik dan konsep bangunan lestari.

Environmental Science II focuses on the basic knowledge of environmental science aspects in the building design. Students are exposed to basic knowledge of techniques and strategies in creating building designs that apply environmental science aspects. Among the contents of the Environmental Science II are thermal comfort, building natural ventilation, natural and artificial lighting, acoustic design and sustainable building concepts.

Pra-Keperluan (jika ada)/ Pre-requisite (if any):

KKSB1272 Sains Persekitaran I / *Environmental Science I*

Bacaan Asas:

Reference:

- Norbert Lechner (Author). 2014. *Heating, Cooling, Lighting: Sustainable Design Methods for Architects* 4th Edition. Wiley.
- F. Alton Everest (Author), Ken Pohlmann (Author). 2014. *Master Handbook of Acoustics*, Sixth Edition. McGraw-Hill Education TAB
- Marshall Long. 2013. *Architectural Acoustics*, 2nd Edition, Academic Press.
- Fergus Nicol, Michael Humphreys and Susan Roaf. 2012. *Adaptive Thermal Comfort: Principles and Practice*, New York: Routledge.

David Etheridge. 2012. *Natural Ventilation of Buildings: Theory, Measurement and Design*, United Kingdom: John Wiley & Sons.

Victoria Newhouse. 2012. *Site and Sound: The Architecture and Acoustics of New Opera Houses and Concert Halls*, New York: The Monacelli Press.

Hasil Pembelajaran

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus <i>Course Outcomes (CO)</i>
1	Menjelaskan konsep asas sains persekitaran dalam rekabentuk senibina. <i>Explain the basic concepts of environmental science in architectural design.</i>
2	Menganalisis isu-isu yang berkaitan dengan aspek sains persekitaran dalam konteks alam bina. <i>Analysis the issues related to environmental science aspects in the built environment context.</i>
3	Mengaplikasikan aspek sains persekitaran di dalam rekabentuk alam bina. <i>Apply environmental science aspects in architectural design.</i>

KKSB3243 Keusahawanan ***Entrepreneurship***

Kursus ini bertujuan untuk mendedahkan dan melatih pelajar mengenai perihal keusahawanan secara umum termasuk bidang senibina. Kursus ini juga akan memberi kefahaman kepada pelajar di dalam membentuk dan membangunkan kemahiran dan pengetahuan di dalam menjalankan satu corak perniagaan atau keusahawanan yang berkaitan termasuk bidang senibina untuk menjadi lebih berkesan dan berjaya.

This course aims to expose and train students regarding entrepreneurship issue in general, including the architectural field. This course will also provide students an understanding in shaping and developing the skills and knowledge in running related business or entrepreneurship including the architectural field, to be more effective and successful.

Pra-Keperluan (jika ada): Tiada

Pre-requisite (if any) : *None*

Bacaan Asas:

Reference:

Chris Guillebeau (2012). *The \$100 Startup: Reinvent the Way You Make a Living, Do What You Love, and Create a New Future*. Crown Business New York

- Bill Aulet (2013). *Disciplined Entrepreneurship: 24 Steps to a Successful Startup*. Wiley
- Cooke, R.A. 2003. *Positive Cash Flow*. Fraklin Lakes, NJ: Career Press.
- Kaplan, J.M. 2001. *Getting Started in Entrepreneurship*. Hoboken, NJ: Wiley.
- McKenzie, R.A. & Schoumacher, B. 1992. *Successful Business Plans for Architects*. New York: McGraw-Hill.
- Piven, P. 2003. *Architect's Essentials of Starting A Design Firm*. Hoboken, NJ: Wiley.
- Wasserman, B., Sullivan, P.J. & Palermo, G. 2000. *Ethics and The Practice of Architecture*. Hoboken, NJ: Wiley.

Hasil Pembelajaran

Course Outcomes

No.	Hasil Pembelajaran Kursus <i>Course Outcomes (CO)</i>
1	Mengenal pasti konsep usahawan, keusahawanan dan nilai-nilai kompetensi keusahawanan <i>Identify the concept of entrepreneur, entrepreneurship and entrepreneurial competency values.</i>
2	Menerangkan aspek-aspek pemasaran, kehendak pasaran dan risiko-risiko perniagaan <i>Explain in detail aspects of marketing, market demands and business risks</i>
3	Menganalisis peluang-peluang perniagaan, tatacara penubuhan syarikat berskil kecil dan sederhana <i>Analyse business opportunities, the procedure for the establishment of small and medium-scaled companies.</i>
4	Menulis laporan rancangan perniagaan dan bekerjasama dalam satu pasukan <i>Write business plan report and work as a team.</i>

KKSB3118 Rekabentuk Senibina V *Architectural Design V*

Kursus Reka Bentuk Senibina V bertujuan untuk mendedahkan pelajar dengan kemahiran merekabentuk bangunan awam atau komersial dalam konteks pinggir bandar atau bandar. Penekanan diberikan kepada penghasilan rekabentuk bangunan mapan tempatan. Ini merangkumi perancangan tapak secara terperinci, rujukan kepada undang-undang Kecil Bangunan Seragam (UBBL) dan akta berkaitan, penerapan teknologi yang bersesuaian dengan persekitaran semulajadi serta pertimbangan terhadap budaya masyarakat yang sentiasa berkembang. Kursus ini juga memberi penekanan kepada penyatuan pelbagai perihal berkaitan ruang, bahan, struktur, dan piawaian bangunan dalam menghasilkan rekabentuk. Selain itu, kursus ini juga mendedahkan pelajar dengan kemahiran mengumpul data, menentukan isu-isu berkaitan, menganalisa dan mensintesis maklumat.

Architectural Design V Course aims to expose students with the skills to design public or commercial buildings in the suburban or urban context. Emphasis is given to the production of local sustainable building design. This includes site planning in detail, by referring to the Uniform Building By-Laws (UBBL) and related acts, the application of appropriate technology in the natural environment and consideration on the constantly evolving cultural society. The course also emphasises the integration of the various matters related to space, materials, structure, and building standards in design production. In addition, this course also introduces students with the skills to collect data, determine the related issues, analyse and synthesise information.

Pra-Keperluan (jika ada): KKSB2218 Reka Bentuk Seni Bina IV
Pre-requisite (if any) : KKSB2218 *Architectural Design IV*

Bacaan Asas:

Reference:

- Urban Design Associates (Author). 2013. *The Urban Design Handbook: Techniques and Working Methods* (Second Edition). W. W. Norton & Company
- James A. LaGro Jr. (Author). 2013. *Site Analysis: Informing Context-Sensitive and Sustainable Site Planning and Design* 3rd Edition. Wiley
- Charles George Ramsey, Harold Reeve Sleeper, Bruce Bassler. 2008, *Architectural Graphic Standard*, 11th Edition, New Jersey: John Wiley & Sons.
- Weinthal, Lois & Brooker, Graeme, 2013, *The Handbook of Interior Architecture and Design*, London: Bloomsbury Publishing PLC.
- Jerry Yudelson & Ulf Meyer. 2013. *The World's Greenest Buildings: Promise Versus Performance in Sustainable Design*. New York: Routledge.

Hasil Pembelajaran:

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus <i>Course Outcomes (CO)</i>
1	Membincangkan keperluan bangunan awam atau komersial dalam konteks pinggir bandar atau Bandar <i>Discuss the needs of the public or commercial buildings in suburban or urban context</i>

2	Membuat sintesis terhadap pengumpulan dan penganalisan serta menentukan isu-isu berkaitan <i>Synthesise data collection and analysis and determine the related issues</i>
3	Menghubungkan pelbagai perihal berkaitan ruang, bahan, struktur, dan piawaian bangunan dalam menghasilkan rekabentuk <i>Correlate various matters related to space, materials, structure, and building standards in design production.</i>
4	Merekabentuk rekabentuk mampan yang bercirikan tempatan <i>Design sustainable design that has local characteristics</i>
5	Mempamerkan lukisan persembahan seni bina yang memenuhi aspek teknikal bangunan <i>Display architectural presentation drawings that meet the building technical aspects</i>

KKSB3123 Lukisan Kerja Senibina ***Architectural Working Drawing***

Kursus ini bertujuan untuk memberikan pelajar kemahiran menyediakan lukisan kerja senibina. Kursus ini juga memberikan kefahaman kepada pelajar tentang jenis-jenis lukisan kerja bangunan bagi pelbagai peringkat dalam perundingan senibina, termasuk lukisan serahan kerajaan tempatan dan lukisan pembinaan. Pelajar juga diperkenalkan dengan lukisan kerja oleh perunding-perunding lain seperti perunding mekanikal, elektrik dan struktur. Dalam kursus ini pelajar akan dilengkapi dengan kemahiran dan pengetahuan asas untuk menyediakan lukisan kerja senibina penting seperti pelan bangunan, pandangan sisi, keratan bangunan, butiran tandas, butiran tangga, lukisan perincian pem-bangunan dan jadual kemasan dalaman dan luaran, menggunakan perisian CAD.

The course aims to provide students with skills for preparing architectural working drawing. The course will also provide students with knowledge of various types of working drawings at various stage of architectural consultancy, including submission drawings to local authority and construction drawings. Students are also introduced to working drawing by others consultants such as mechanical, electrical and structural. In this course, the students will be equipped with basic skills and knowledge to prepare important architectural working drawings such as building plan, elevation, section , toilet detail, staircase detail, special construction detail and schedule of internal and external finishes, using CAD software.

Pra-Keperluan (jika ada): Tiada
Pre-requisite (if any) : *None*

Bacaan Asas:**Reference:**

- Keith Styles. 2014. *Working Drawings Handbook*. Architectural Press
- Annette Spiro & David Ganzoni. 2014. *The Working Drawing*. Park Books
- Osamu A. Wakita, Nagy R. Bakhoun, Richard M. Linde. 2011, *The professional practice of architectural working drawings*, 4th Edition, New Jersey: John Wiley & Sons
- Charles George Ramsey, Harold Reeve Sleeper, Bruce Bassler. 2008, *Architectural Graphic Standard*, 11th Edition, New Jersey: John Wiley & Sons.
- Marco Ciriello, Chandler Associates Architecture. 2002. *Architectural Design Graphics: Pallettes and Styles to Fit Your Home*, 1st Edition. New York: McGraw Hill

Hasil Pembelajaran**Course Outcomes**

Bil No.	Hasil Pembelajaran Kursus <i>Course Outcomes (CO)</i>
1	Mengenal pasti jenis-jenis lukisan kerja seni bina. <i>Identify the types of architectural working drawings.</i>
2	Mengimplementasi kehendak reka bentuk bangunan ke dalam bentuk lukisan kerja seni bina. <i>Implement the design requirements of a building into architectural working drawing.</i>
3	Menyediakan lukisan kerja seni bina untuk serahan kerajaan tempatan dan pembinaan. <i>Prepare architectural working drawings for local authority submission and construction.</i>

KKSB3163 Teknologi Binaan Dan Bahan III ***Construction of Technology And Material III***

Kursus ini bertujuan untuk memperkenalkan pelajar kepada sistem struktur dalam pembinaan teknologi konkrit dan konkrit tetulang serta keluli secara terperinci. Antara tajuk utama yang akan dibicarakan termasuk sistem-sistem struktur dalam pembinaan, perincian bahan binaan konkrit tetulang dan keluli sebagai bahan kerja utama, teknologi konkrit dan keluli serta butiran binaan konkrit tetulang pra tegasan dan kemasan bangunan turut dibincangkan.

The course aims to introduce students to the structural system in the construction technology of concrete and reinforced concrete as well as steel in detail. Among the main topics to be discussed include structural systems in construction, building material specification of reinforced

concrete and steel as the main materials, concrete technology and steel as well as the building specification of precast and prestressed reinforced concrete building along with building finishes are to be discussed.

Pra-Keperluan (jika ada) \ Pre-requisite (if any) :

KKSB2153 Teknologi Binaan dan Bahan II/
Construction Technology and Material II

Bacaan Asas:

Reference:

- Edward Allen & Joseph Iano. 2013. *Fundamentals of Building Construction: Materials and Methods*. 6th Edition. New York: John Wiley & Sons
- A.M. Neville. 2012. *Properties of Concrete*. 5th Edition. Philadelphia: Trans Atlantic Publications
- Buick Davison, Graham W. Owens. 2012. *Steel Designers' Manual*. 7th Edition. New Jersey: Wiley-Blackwell.
- Gil Taylor. 2013. *Construction Codes & Inspection Handbook*. New Jersey: McGraw Hill Book Co
- Francis D. K. Ching. 2014. *Building Construction Illustrated*. 5th Edition. New Jersey: John Wiley & Sons.

Hasil Pembelajaran

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus <i>Course Outcomes (CO)</i>
1	Mengenalpasti asas jenis-jenis sistem struktur dalam pembinaan <i>Identify basic types of structural system in construction</i>
2	Mengaplikasikan teknologi binaan konkrit/konkrit tetulang dan teknologi keluli dengan secara terperinci <i>Apply the concrete construction/ reinforced concrete and steel technologies in detail.</i>
3	Mengenalpasti rekabentuk idea untuk menghasilkan rekabentuk inovatif berasaskan binaan konkrit, konkrit tetulang serta keluli <i>Determine the design ideas to generate innovative design made of concrete, reinforced concrete and steel</i>

KKSB3173 Kemudahan Bangunan II ***Building Services II***

Kemudahan Bangunan II memberi pemahaman kepada pelajar mengenai sistem kemudahan bangunan dan elemen kelestarian. Kursus ini member penekanan kepada sistem hawa dingin, sistem sirkulasi dalam bangunan, sistem pencegahan kebakaran, sistem tenaga suria, sistem penuaian air hujan dan konsep bangunan lestari. Pendedahan meliputi komponen asas sistem, jenis-jenis sistem dan keperluan rekabentuk bagi sesebuah sistem kemudahan bangunan.

Building Services II gives an understanding to students regarding building service system and sustainability elements. This course emphasises air-conditioning system, the circulatory system in the building, fire retention system, solar energy system, stormwater harvesting system and sustainable building concept. Exposure comprises basic components of the system, the types of system and design requirements for building service system.

Pra-Keperluan (jika ada)/ *Pre-requisite (if any)* :

KKSB2213 Kemudahan Bangunan I/ *Building Services I*

Bacaan Asas:

Reference:

- Fred Hall & Roger Greeno. 2013. *Building Services Handbook. 7th Edition.* New York: Routledge.
- David Bownass. 2013. *Building Services Design Methodology: A Practical Guide.* New York: Spon Press.
- Paul Tymkow, Savvas Tassou, Maria Kolokotroni & Hussam Jouhara. 2013. *Building Services Design for Energy Efficient Buildings.* New York: Routledge.
- Charlotte Baden-Powell. 2013. *Architect's Pocket Book. 2nd Edition.* Oxford: Elsevier Science.
- Jerry Yudelson & Ulf Meyer. 2013. *The World's Greenest Buildings: Promise Versus Performance in Sustainable Design.* New York: Routledge.

Hasil Pembelajaran

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus Course Outcomes (CO)
1	Menjelaskan sistem kemudahan bangunan <i>Explain building service system</i>
2	Mengaplikasikan sistem kemudahan dalam reka bentuk bangunan <i>Apply service system in the building design.</i>
3	Menilai sistem kemudahan yang bersesuaian bagi sesebuah bangunan <i>Assess the appropriate service system for a building</i>
4	Mengenalpasti sistem kemudahan bangunan lestari <i>Identify a sustainable building service system.</i>

KKSB3228 Rekabentuk Senibina VI

Architectural Design VI

Kursus Reka Bentuk Senibina VI bertujuan untuk mendedahkan pelajar dengan kemahiran merekabentuk bangunan hunian dalam konteks pinggir bandar atau bandar. Penekanan diberikan kepada penghasilan rekabentuk bangunan mapan tempatan, yang juga menerapkan aspek rekabentuk universal. Ini merangkumi perancangan tapak secara terperinci, rujukan kepada undang-undang Kecil Bangunan Seragam (UBBL) dan akta berkaitan, penerapan teknologi lestari yang bersesuaian dengan iklim dan persekitaran serta pertimbangan terhadap keperluan orang kelainan upaya (OKU). Penekanan juga diberikan kepada penyatuan pelbagai perihal berkaitan ruang, bahan, struktur, piawaian bangunan dan rekabentuk universal dalam menghasilkan rekabentuk bangunan. Selain itu, kursus ini juga mendedahkan pelajar kepada kemahiran mengumpul data, menentukan isu-isu berkaitan, menganalisa dan mensintesis maklumat.

Architectural Design VI Course aims to expose students with the skills to design a residential building in suburban or urban context. Emphasis is given to the production of local sustainable building design, which also applies universal design aspects. This includes site planning in detail, by referring to the Uniform Building By-Laws (UBBL) and related acts, implementation of sustainable technology that is tailored to the climate and the environment as well as consideration of the needs of persons with disabilities (PWD). Emphasis is also given to the integration of the

various matters related to space, materials, structure, building standards and universal design in building design production. In addition, this course also introduces students to the skills of collecting data, determining the related issues, analyse and synthesise information.

Pra-Keperluan (jika ada): KKSB3118 Reka Bentuk Seni Bina V
Pre-requisite (if any) : KKSB3118 *Architectural Design V*

Bacaan Asas:

Reference:

- Lauren Liess (2015). *Habitat: The Field Guide to Decorating*. Abrams
New York
- Bernard Leupen, Harald Mooij (Author) (2012). *Housing Design: A Manual*. NAI
- Alejandro Aravena and Andres Iacobelli (2013). *Elemental: Incremental Housing and Participatory Design Manual*.
Elemental
- Wan Teh, W. H., & Nasir, A. H. (2011). *The Traditional Malay House*.
Kuala Lumpur: Institut Terjemahan Negara Malaysia.
- Roaf, Sue, Manuel F and Stephanie T. 2013 *Ecohouse: A Design Guide*.
UK: Architectural Press.
- Fred Hall & Roger Greeno. 2013. *Building Services Handbook*. 7th Edition.
New York: Routledge

Hasil Pembelajaran

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus Course Outcomes (CO)
1	Membentangkan keperluan bangunan hunian dalam konteks pinggir bandar atau Bandar <i>present the needs of residential building in suburban or urban context.</i>
2	Menghasilkan identiti seni bina kebangsaan berteraskan aspek seni bina mampan <i>Create a national architectural identity based on sustainable architecture aspects.</i>
3	Membuat sintesis terhadap data yang dikumpulkan dan isu berkaitan <i>Synthesise data collection and related issues.</i>
4	Menunjukkan kajian kebolehlaksanaan dalam rekabentuk <i>Show a study on feasibility study in design</i>

5	Merekabentuk pelbagai perihal berkaitan ruang, bahan, struktur, piawaian bangunan dan rekabentuk universal dalam senibina <i>Design various matters related to space, materials, structure, building standards and universal design in architecture</i>
6	Menghasilkan lukisan persembahan seni bina yang memenuhi aspek teknikal bangunan <i>Produce architectural presentation drawings that meet the building technical aspects</i>

KKSB3233 Pengajian Topikal ***Topical Study***

Pelajar dikehendaki menyediakan kertas penulisan projek penyelidikan di mana tajuknya adalah bebas tetapi mempunyai kaitan secara langsung dengan bidang seni bina. Di samping itu juga pelajar akan didedahkan dengan siri kuliah kaedah penyelidikan dan penulisan yang sistematik oleh pensyarah-pensyarah di dalam sesi kuliah. Melalui pelaksanaan kursus ini, pelajar akan memperoleh pengalaman dan kemahiran asas dalam penyelidikan serta penulisan laporan penyelidikan yang sistematik.

Students are required to provide research project paper in which the title is subject to their choice but has a direct relevance to the architectural field. In addition, students will also be exposed to a series of lectures consisting of research methodology and systematic writing by the lecturers. Through the course implementation, students will gain experience and skills in research and report writing systematically.

Pra-Keperluan (jika ada): Tiada
Pre-requisite (if any) : None

Bacaan Asas: ***Reference:***

- Tom Spector (2012). *How Architects Write*. Routledge
- Elizabeth DePoy PhD OTR MSW and Laura N. Gitlin (2015). *Introduction to Research: Understanding and Applying Multiple Strategies*, 5e. Elsevier
- Creswell, J. W. 2014. *Research Design: Qualitative, Quantitative and Mixed Method Approaches – 4th Edition*. California: Sage Publications
- Groat, L., Wang, D. 2013. *Architectural Research Methods – 2nd Edition*. New Jersey: John Wiley & Son
- Leedy, P. D., Ormrod, J. E. 2014. *Practical Research, Planning and Design - 10th Edition*. Essex: Pearson Education Limited.

Hasil Pembelajaran

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus <i>Course Outcomes (CO)</i>
1	Mengenal pasti permasalahan kajian dan menentukan objektif kajian <i>Identify problems and determine the objectives.</i>
2	Keupayaan untuk mencari dan mengumpul maklumat dari pelbagai sumber <i>Able to find and collect information from various sources</i>
3	Menganalisis dan menginterpretasi data <i>Analyse and interpret data</i>
4	Menunjukkan penulisan laporan teknikal dalam bentuk disertasi <i>Come up with technical report writing in form of dissertation.</i>
5	Berhujah dalam membentangkan dan mempertahankan hasil kajian <i>Highlight argument in presentation and defend the study results.</i>

KKSB3253 Amalan Profesional ***Professional Practice***

Kursus ini membincangkan mengenai amalan dalam kerjaya senibina dan industri binaan dengan penekanan kepada pengetahuan tentang hubungan antara arkitek dan semua pihak yang berkaitan. Pendedahan juga diberikan mengenai asas tender dan penyediaan naskah tender serta kehendak pihak berkuasa tempatan, peraturan dan kebenaran membina bangunan serta undang-undang yang berkaitan.

This course discusses the practices in the career of architecture and construction industry with emphasis on knowledge regarding relationship between architect and all relevant parties. Exposure is also given regarding tender, tender document preparation and requirements by local authorities, rules and permission to build buildings and the related legislation.

Pra-Keperluan (jika ada): Tiada
Pre-requisite (if any) : *None*

Bacaan Asas: ***Reference:***

- Laws of Malaysia. 2010. *Uniform Building By-Laws. 17th Edition.* Kuala Lumpur: MDC Publishers Sdn Bhd.
- Spector, T. 2001. *The Ethical Architect.* Prinseton Arch Press.
- David, C. & Andrew, W. 2000. *The Architect in Practice. 8th Edition.* Oxford : Blackwell Science.

Laws of Malaysia. 2010. *Uniform Building By-Laws. 17th Edition.*
Kuala Lumpur: MDC Publishers Sdn Bhd.

Wasserman, B., Sullivan, P.J. & Palermo, G. 2000. *Ethics and The Practice of Architecture.* Hoboken, NJ: Wiley.

Hasil Pembelajaran

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus Course Outcomes (CO)
1	Membincangkan prinsip asas dan permasalahan dalam amalan senibina <i>Discuss the basic principles and problems in the practice of architecture</i>
2	Mengenalpasti perihal dalam industri pembinaan dan pengurusan pejabat <i>Determine the issues in the construction industry and office management.</i>
3	Menerangkan tentang perihal asas pembangunan projek serta urusan pengendaliannya <i>Describes the basic description of the project development and operation affairs</i>
4	Menerangkan tentang perihal asas perundangan yang berkait rapat dengan peraturan berdasarkan UKBS dan kebenaran membina bangunan. <i>Explains the legal basis that is associated with building construction regulation according to UBBL and permission.</i>

KKSB3262 Teori dan Idea Senibina

Theory and Idea of Architecture

Kursus ini memberi tumpuan kepada teori reka bentuk senibina yang dikemukakan sebagai kritikan terhadap permasalahan senibina Moden dan masakini seperti kehilangan identiti setempat, ketidaksihan, isu sosial, ketidaksesuaian iklim, kebakuan reka bentuk dan sebagainya. Teori-teori yang dikemukakan dalam kursus ini merupakan usaha bagi menangani permasalahan-permasalahan tersebut mengikut keutamaan yang diberikan oleh para pencetus dan pendokong teori-teori tersebut. Penekanan diberikan kepada teori-teori yang menjurus ke arah pembentukan identiti setempat seperti fenomenologi, regionalisme kritis, simbiosis dan sebagainya. Pendedahan juga akan diberikan dalam penerapan rangka pemikiran senibina yang bergagasan Islam dan setempat. Teori dan idea yang dipelajari boleh dijadikan panduan oleh pelajar untuk memantangkan pemikiran mereka dalam mengetengahkan idea reka bentuk dalam studio.

This course focuses on the architectural design theory that is addressed as criticism to the modern and contemporary architectural issues such as the loss of local identity, social issues, climate incompatibility, stagnation of

design and so on. The theories which are presented in this course are to address these issues based on priority given by the pioneer and supporter of these theories. Emphasis is given to theories that lead to the formation of local identity such as phenomenology, critical regionalism, symbiosis and so on. Exposure will also be given in the integration of architectural thinking frame which is oriented to Islamic and local influence. Theories and ideas learnt can guide students in maturing their thoughts in order to highlight their design ideas in studio.

Pra-Keperluan (jika ada): Tiada
Pre-requisite (if any) : None

Bacaan Asas:

Reference:

- Bandyopadhyay, S. & Montiel, G.G. 2013. *The Territories of Identity: Architecture in the Age of Evolving Globalization*. London & New York: Routledge Taylor & Francis Group.
- Gurupiah Mursid & Mohd Tajuddin Mohd Rosdi. 2016. *Regionaisme dalam Seni Bina Malaysia*. Kuala Lumpur: Dewan Bahasa & Pustaka.
- Korydon Smith (Editor). 2012. *Introducing Architectural Theory: Debating a Discipline 1st Edition*. Routledge.
- Venturi, R. 1977. *Complexity and Contradiction in Architecture*. New York: The Museum of Modern Art.
- Phillip Gibbs, Yahya Abdul Rahman & Zamani Kassim, 1987, *Building a Malay House, Singapore* : Oxford University Press
- Zulkifli Hanafi, 1996, *Pembinaan Bangunan Tradisional Melayu*, Kulirn, Amber Solara Publication.

Hasil Pembelajaran

Course Outcomes

Bil No.	Hasil Pembelajaran Kursus Course Outcomes (CO)
1	Menjelaskan teori-teori reka bentuk senibina era pasca moden dan senibina Kebangsaan <i>Explain architectural design theories in the post-modern era and National architecture.</i>
2	Menilai prinsip-prinsip dalam teori senibina pasca moden dan senibina Kebangsaan <i>Assess the principles in the post-modern architecture and National architecture theories.</i>
3	Membincangkan pendekatan kritis, analitikal, kreatif dan inovatif dalam reka bentuk senibina masakini dengan menjadikan teori-teori yang dipelajari sebagai rujukan <i>Discuss critical, analytical, creative and innovative approaches in the contemporary architectural design by using the theories learnt as reference</i>