PUSAT PENGAJIAN PENDIDIKAN JARAK JAUH

Academic Planner

JIM 101
CALCULUS

Academic Session 2019/2020

VIDEO CONFERENCE (WEBEX) CLASS		
Session	**Dates**	**Time**
1		
2		
3		
4		
5		
6		
7		
8		

Students need to fill in the date and time of video conference (WEBEX) sessions. Please refer to the video conference (WEBEX) timetable for the Academic Session 2019/2020 provided.

JIM 101/4 – CALCULUS

COURSE MANAGERS:

Dr. Mohd. Asyraf Mansor (ASYRAF)

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COURSE SYNOPSIS

Book 1 – Number System and Functions. (ASYRAF)

Real numbers: Inequalities; absolute values. **Complex numbers:** operations on complex numbers; equalities of complex numbers; Argand diagrams; polar form. **Functions:** domains and ranges; one-to-one functions; onto functions; linear and quadratic functions; composite functions; inverse functions; transcendental functions.

Book 2 – Differentiation and Applications. (ASYRAF)

Limits and continuity: concept of limit; one-sided limits; definition of limits; properties of limits; limits at infinity; continuous functions; continuity on intervals; pinching/sandwich theorem. **Differentiation:** derivatives; rules of differentiation; higher order derivatives; chain rule; differentiation of trigonometric functions, logarithmic functions, exponential functions, implicit functions, parametric functions, inverse trigonometric functions and hyperbolic functions. **Application of derivatives:** related rates; maxima and minima; Mean

Value theorem; the first derivative test for local extrema; concavity; the second derivative test; curve sketching; indeterminate forms and L'Hopital's rule.

Book 3 – Integration and Transcendental Functions. (AINOR)

Anti-derivatives: indefinite integral; definite integral; fundamental theorem of calculus; integration of polynomials and the transcendental functions. **Techniques of integration:** integration by simple substitutions; integration by parts; trigonometric substitutions; partial fractions; integrals of other specific forms. **Integration applications:** area under a graph, area between two curves, volumes of solids of revolution by circular rings method and cylindrical shells method.

Book 4 – Conic Sections and Application of Integral. (AINOR)

Conic section: Circle, parabola, ellipse and hyperbola. **Polar coordinates:** curve and area of region in polar coordinates.

REQUIRED TEXT

Textbook: Siri Pendidikan Jarak Jauh
Book 1: Number System and Functions.
Book 2: Differentiation and Applications.
Book 3: Integration and Transcendental Functions.
Book 4: Conic Sections and Application of Integral.

VIDEO CONFERENCE (WEBEX)

There are 8 video conference (WEBEX) sessions will be conducted by the instructor throughout the academic year. Please read the required chapters from the text book. Students are encouraged to attempt solving the given questions before attending each session as you are expected to participate in the live WEBEX discussions.

BEFORE INTENSIVE COURSE

Video Conference (WEBEX) 1

Book 1 – Number System and Functions.

Video Conference (WEBEX) 2

Book 1 – Number System and Functions.

Video Conference (WEBEX) 3

Book 2 – Differentiation and Applications.

Video Conference (WEBEX) 4

Book 2 – Differentiation and Applications.

POST INTENSIVE COURSE

Video Conference (WEBEX) 5

Book 3 – Integration and Transcendental Functions.

Video Conference (WEBEX) 6

Book 3 – Integration and Transcendental Functions.

Video Conference (WEBEX) 7

Book 4 – Conic Sections and Application of Integral.

Video Conference (WEBEX) 8

Book 4 – Conic Sections and Application of Integral.

Important Notes:

1. Studying in distance learning environment required full commitment. You need to manage your time wisely, complete all assigned tutorials and assignment questions, ready to participate fully in the video conference (WEBEX) sessions. You are responsible for being an active participant in the video conferencing class rather than a passive observer. If you miss the class, please download the video from the portal.

2. Students need to study the respective topics and solve the exercise questions before attending video conference session. During the video

conference session, the summary of the specific chosen topic will be given by the course instructor, followed by the tutorial session where students are encouraged to participate, by asking questions or answering questions.

3. Students are encouraged to use e-learning forum portal to discuss questions or problems with course mates and course instructor.

Exercises are given at the end of each chapter and students are encouraged to try as many exercises as possible. The exercises and WEBEX agenda will be uploaded to USM e-Learning portal before the WEBEX sessions. As a PPPJJ student, you are entirely responsible for your own success. Kindly manage your time wisely with all the assigned work completed and keep on practice.

"The only way to learn Mathematics is by doing Mathematics" -Paul Halmos-

ASSIGNMENT

Assignments are for your own benefit in order to retain your mathematical skills. Please take it seriously as assignments will carry 20% weightage of your grade. There will be 2 online assignments. E-assignment questions will be posted in the portal and students are expected to answer via e-Learning portal. (Labelled as Quiz)

e-Assignment 1: Based on topics in Book 1 and Book 2.
Due date – – (To Be Announced During WEBEX Session)

e-Assignment 2: Based on topics in Book 3 and Book 4.
Due date – – (To Be Announced During WEBEX Session)

NOTE:

1. Please be advised that the e-Assignments must be completed no later than the due date. Students will be graded and solutions to the assignment will be posted immediately after the cut off time. Therefore, please complete your assignment on time.

2. e-Assignment is an interactive assignment that requires student to complete within the time given. Suppose any technical issues occur while completing

the assignment, please consult with our IT Officer (Puan Sabariah 04-6533951).

What you most emphatically should NOT do is copying answer from your coursemates.

Academic dishonesty is unacceptable and will be penalized accordingly.

CONTINUOUS ASSESSMENT (PB)

As part of the continous assessment of the course, a test will be given during the intensive course.
Materials that will be tested: Topics covered from Webex 1 until Webex 4.

INTENSIVE COURSE

PPPJJJ Intensive Course will be held from 28th January 2020 – 13th February 2020. More information about the activities during the Intensive Course will be given later. Kindly check the e-Learning portal religiously for the latest announcement about intensive course.

FINAL EXAMINATION

Final exam will be held during the month of 8th June 2020 – 28th June 2020 (tentatively). Please refer to e-portal from time to time for the final examination schedule. ALL topics covered during Webex 1 until Webex 8 will be tested.

COURSE GRADE

There will be 2 assignments, 1 continuous assessment (PB) and and a comprehensive final exam. The final course grade will be based on the following distribution:

Final Examination			**60%**
Coursework	**e-Assignment 1**	10%	**40%**
	e-Assignment 2	10%	
	Continuous Assessment	20%	

CONSULTANCY AND QUESTIONS

You can send me an e-mail if you need my assistance on Calculus. You are also advised to utilize the e-learning portal inbox to pose any inquiries.

Kindly scan the QR code below to see my availability and the consultation hours for JIM101.

OR

URL: bit.ly/drasyrafpjj

FURTHER REFERENCES

1) Anton, H., Bivens, I., and Davis, S., Calculus: Early Transcendental, 10th Edition, John Wiley & Sons, 2013.
2) Hass, J., Weir, M., and Thomas, G., University Calculus: Early Transcendentals, 2nd Edition, Pearson, 2014.
3) Stewart, J., Calculus, 8th Edition, Cencage Learning, 2016.