

DEPARTMENT OF ZOOLOGY  
ABHEDANANDA MAHAVIDYALAYA, SAINTHIA  
ACADEMIC PLAN (SUGGESTIVE)

Semester:	II
Courses:	CORE COURSE III (CC-3)- NON-CHORDATES -II
TotalMarks:	75
Total credit:	06 (Theory-4+ Practical-2)
Total no. of lectures:	75 (T-50+P-20)
Objective:	To have a tentative course of action well in advance through the said Academic Plan to be able to: <ul style="list-style-type: none"><li>• execute the new CBCS with ease</li><li>• finish syllabus and conduct evaluations on time to the satisfaction of both the student and the teacher</li></ul>
Evaluation method:	C1- 10% of the total marks (class test/assignment/seminar + attendance) C2- 10% of total marks (class test/assignment/seminar + attendance) C3- 60 marks [T-(10x2) + (5x2) + (2x5) + P-20]- semester-end examination
C1:	8 <sup>th</sup> week from the beginning of the semester Completion of 1/3 <sup>rd</sup> of the total course syllabus Around 1 <sup>st</sup> week of March 2018
C2:	16 <sup>th</sup> week from the beginning of semester Completion of 2/3 <sup>rd</sup> of the syllabus Around 1 <sup>st</sup> week of May 2018
C3:	21 <sup>st</sup> -23 <sup>rd</sup> week Full Syllabus Around Last Week of June, 2018

**Syllabus CC3**

**NON-CHORDATES-II(THEORY)**

<b>Unit1:Introduction</b>	
Evolution of coelom and metamerism	
<b>Unit2: Annelida</b>	
1. General characteristics and Classification up to order 2. Excretion in Annelida through nephridia. 3. Metamerism in Annelida.	
<b>Unit3: Arthropoda</b>	
1. General characteristic sand Classification up to subclass 2. Vision in Insecta 3. Respiration in Arthropoda (Gills in prawn and trachea in cockroach) 4. Metamorphosis in Lepidopteran Insects. 5. Social life in termite	
<b>Unit4: Onychophora</b>	
General characteristics and Evolutionary significance	
<b>Unit5: Mollusca</b>	
1. General characteristics and Classification up to classes 2. Nervous system and torsion in Gastropoda 3. Feeding and respiration in <i>Pila sp</i>	
<b>Unit6: Echinodermata</b>	
1. General characteristics and Classification up to orders 2. Water-vascular system in Asteroidea 3. Larval forms in Echinodermata 4. Affinities with Chordates	
<b>Unit7: Hemichordata</b>	
General characteristics of phylum Hemichordata. Relationship with non-chordates and chordates	

**PRACTICAL-**

1. Spot identification of following specimens (based on specimen characters):

a. Annelids-

*Aphrodite, Nereis, Heteronereis, Sabella, Chaetopterus, Pheretima, Hirudinaria*

b. Arthropods- *Carcinoscorpius, Palamnaeus, Palaemon,*

	<p><i>Daphnia, Balanus, Sacculina, Cancer, Eupagurus, Scolopendra, Julus, Bombyx, Periplaneta, Odontotermes and Apis</i></p> <p>c. Onychophora- <i>Peripatus</i></p> <p>d. Molluscs - <i>Chiton, Dentalium, Pila, Doris, Helix, Lamellidens, Ostrea, Pinctada, Sepia, Octopus, Nautilus</i></p> <p>e. Echinoderms- <i>Pentaceros / Asterias, Ophiura, Clypeaster, Echinus, Cucumaria and Antedon</i></p> <p>f. Hemichordates - <i>Balanoglossus</i></p> <p>2. Study of digestive system, septal nephridia and pharyngeal nephridia of earthworm using model and chart</p> <p>3. T.S. through pharynx, gizzard, and intestine at typhlosolar region of earthworm</p> <p>4. Mount of mouth parts and study of digestive system and nervous system of <i>Periplaneta</i></p> <p>5. To submit a Project Report on any related topic on larval forms (arthropods, mollusc an</p>
<p>Texts prescribed by university for uniformity in translation and ease of access</p>	<ul style="list-style-type: none"> <li>● Barnes, R. D. &amp; Ruppert, E. E., (1994). Invertebrate Zoology. 6th Ed. Brooks Cole.</li> <li>● Kotpal, R.L., 1988 – 1992. (All Series) Protozoa, Porifera, Coelenterata, Annelida, Arthropoda, Mollusca, Echinodermata, – Rastogi Publications, Meerut – 250 002</li> <li>● Sinha, K. S., Adhikari, S., &amp; Ganguly, B. B. Biology of Animals. Vol. I. New Central Book Agency. Kolkata.</li> <li>● Jordan, E. L. &amp; Verma, P. S. (2006). Invertebrate Zoology. S. Chand &amp; Company Ltd. New Delhi.</li> <li>● Hymen.L.H(1951)The invertebrate vol-1</li> <li>● Chatterjee and Chatterjee practical Zoology.</li> <li>● Ghosh K.C and Manna,B.(2015):Practical Zoology,New Central Book Agency, Kolkata.</li> </ul>

<b>ACADEMIC PLAN</b>	
Semester Begins	First week of January 2018
Number of lectures/week (1hr/lecture)	Theory=08+Practical=04
<p>Tentative no. of classes/topic taken and syllabus covered before C1</p> <p><b>1/3<sup>rd</sup> of CC-3 should have been covered</b></p>	<p><b><u>Theory</u></b></p> <ul style="list-style-type: none"> <li>• <b>Unit-I</b> Evolution of coelom and metamerism(2L)</li> <li>• <b>Unit-2</b> General characteristics and Classification up to order       <ol style="list-style-type: none"> <li>2. Excretion in Annelida through nephridia.</li> <li>3. Metamerism in Annelida(8L)</li> </ol> </li> <li>• <b>Unit-3</b> 1. General characteristic sand Classification up to subclass       <ol style="list-style-type: none"> <li>2. Vision in Insecta</li> <li>3. Respiration in Arthropoda (Gills in prawn and trachea in cockroach)</li> <li>4. Metamorphosis in Lepidopteran Insects.</li> <li>5. Social life in termite.(.18L)</li> </ol> </li> <li>• <b><u>Practical- point1&amp;3</u></b></li> <li>• 1.Spot identification of following specimens (based on specimen characters):       <ol style="list-style-type: none"> <li>a. Annelids- <i>Aphrodite, Nereis, Heteronereis, Sabella, Chaetopterus, Pheretima, Hirudinaria</i></li> <li>b. Arthropods- <i>Carcinoscorpius, Palamnaeus, Palaemon, Daphnia, Balanus, Sacculina, Cancer, Eupagurus, Scolopendra, Julus, Bombyx, Periplaneta, Odontotermes and Apis</i></li> <li>c. Onychophora- <i>Peripatus</i></li> <li>d. Molluscs - <i>Chiton, Dentalium, Pila, Doris, Helix, Lamellidens, Ostrea, Pinctada, Sepia, Octopus, Nautilus</i></li> <li>e. Echinoderms- <i>Pentaceros / Asterias, Ophiura, Clypeaster, Echinus, Cucumaria and Antedon</i></li> <li>f. Hemichordates – <i>Balanoglossus(12L)</i></li> </ol> </li> <li>• 3. T.S. through pharynx, gizzard, and intestine at typhlosolar region of earthworm(4L)</li> </ul>
Last week of February 2018	Deciding of method of evaluation for C1Topic/area-unit 2&3 ,Notifying students about

	the topic and the method of assessment.
2 <sup>nd</sup> week of March 2018	<ul style="list-style-type: none"> <li>• Submitting question papers for class test/ topic for seminar/ assignment</li> </ul>
3 <sup>rd</sup> week of March 2018	<ul style="list-style-type: none"> <li>• Conducting C1 (8<sup>th</sup> week of sem.)</li> <li>• Class test/seminar/assignment</li> <li>• Calculating class attendance</li> </ul>
4 <sup>th</sup> week of March 2018	<ul style="list-style-type: none"> <li>• Department meeting</li> <li>• Keeping record marks for C1</li> </ul>
Syllabus covered after CI	<p><b><u>Theory:</u></b> Unit-4 General characteristics and Evolutionary significance(3L)</p> <ul style="list-style-type: none"> <li>• <b><u>Practical</u></b> point-2 Study of digestive system, septal nephridia and pharyngeal nephridia of earthworm using model and chart(3L)</li> </ul>
Tentative no. of classes/topic taken and syllabus covered before C2  <b>2/3<sup>rd</sup> of CC3 should have been covered</b>	<p><b><u>Theory</u></b> Unit-5 . General characteristics and Classification up to classes 2. Nervous system and torsion in Gastropoda 3. Feeding and respiration in <i>Pila</i> sp....(10L)</p> <ul style="list-style-type: none"> <li>• <b>Unit-6</b> General characteristics and Classification up to orders 2. Water-vascular system in Asteroidea 3. Larval forms in Echinodermata 4. Affinities with Chordates ys practice(8L)</li> <li>• <b>Unit-7</b> General characteristics of phylum Hemichordata. Relationship with non-chordates and chordates..(2L)</li> </ul> <p><b><u>Practical</u></b> 4. Mount of mouth parts and study of digestive system and nervous system of <i>Periplaneta</i>(5L) 5. To submit a Project Report on any related topic on larval forms (arthropods, molluscan &amp;Echinodermata..(3L)</p>

1 <sup>st</sup> week of May 2018	<ul style="list-style-type: none"> <li>• Deciding of method of evaluation for C2</li> <li>• Topic/area- Unit6&amp;5</li> <li>• Notifying students about the topic and the method of assessment</li> </ul>
2 <sup>nd</sup> week of May 2018	<ul style="list-style-type: none"> <li>• Submitting question papers for class test/ topic for seminar/ assignment</li> </ul>
3 <sup>rd</sup> week of May 2018	<ul style="list-style-type: none"> <li>• Conducting C2 (16<sup>th</sup> week of sem.)</li> <li>• Class test/seminar/assignment</li> <li>• Calculating class attendance</li> </ul>
4 <sup>th</sup> week of May 2018	<ul style="list-style-type: none"> <li>• Department meeting</li> <li>• Keeping record marks for C2</li> </ul>
3 <sup>rd</sup> week of June 2018	<p><b>Syllabus for CC3(theory +practical) should have been completed</b> including providing necessary guidelines, pointers, study materials leaving them enough time to prepare for C3</p>
1 <sup>st</sup> week of January 2018	<p>Clearing last moment doubts of students regarding any portion of CC3 for C3</p>