

國立屏東大學 109學年度第1學期 教學課程綱要

※為保護智慧財產權，請勿非法影印教科書。

課程學分數：2.00(2.00小時)

授課老師：陳雅鈴(885000)

必選修：選

開課序號	0268																																	
科目名稱	幼兒STEAM教育(ECE3710)																																	
科目英文名稱	STEAM education for young children																																	
授課語言	英語/國語																																	
主要教學型態	課堂教學&小組討論																																	
教學目標	<p>To understand the theories of STEAM education To evaluate different models of STEAM education for young children To gain the ability of designing and developing STEAM curriculum for young children To identify teaching strategies of inquiry-based STEAM teaching To design methods for evaluating the effect of STEAM curriculum and children' s performance To demonstrate proficient knowledge of STEAM lessons, activities, guiding strategies, and evaluating method for young children</p> <p>瞭解STEAM 教育相關理論 評估不同幼兒STEAM 教育模式能力 具備幼兒STEAM 教育的課程發展及設計能力 瞭解探究導向的STEAM教學策略 具備設計STEAM教育成效評量的方法 具備STEAM教育的教師專業知能</p>																																	
每週課程內容及教學方法	<table border="1"> <thead> <tr> <th>Date</th> <th>week</th> <th>Content</th> </tr> </thead> <tbody> <tr> <td>9/15</td> <td>1</td> <td>The importance and theory of STEAM education</td> </tr> <tr> <td>9/22</td> <td>2</td> <td>The world trend of STEAM education</td> </tr> <tr> <td>9/29</td> <td>3</td> <td>Multiple types of curriculum models in STEAM education</td> </tr> <tr> <td>10/6</td> <td>4</td> <td>Practice-start the STEAM teaching with a picture book story (1st group presentation + practice)</td> </tr> <tr> <td>10/13</td> <td>5</td> <td>Practice-Start the STEAM teaching with a picture book story (2nd group presentation + practice)</td> </tr> <tr> <td>10/20</td> <td>6</td> <td>Practice-start the STEAM teaching through drama (3rd presentation + practice)</td> </tr> <tr> <td>10/27</td> <td>7</td> <td>Practice-start the STEAM course through drama (4th group presentation + practice)</td> </tr> <tr> <td>11/3</td> <td>8</td> <td>Practice: start the STEAM course with the task of a little engineer (the 5th group presentation +practice)</td> </tr> <tr> <td>11/10</td> <td>9</td> <td>Practice: start the STEAM course with the task of a little engineer (the 6th group presentation +practice)</td> </tr> <tr> <td>11/17</td> <td>10</td> <td>Practical case sharing of STEAM education for young</td> </tr> </tbody> </table>	Date	week	Content	9/15	1	The importance and theory of STEAM education	9/22	2	The world trend of STEAM education	9/29	3	Multiple types of curriculum models in STEAM education	10/6	4	Practice-start the STEAM teaching with a picture book story (1st group presentation + practice)	10/13	5	Practice-Start the STEAM teaching with a picture book story (2nd group presentation + practice)	10/20	6	Practice-start the STEAM teaching through drama (3rd presentation + practice)	10/27	7	Practice-start the STEAM course through drama (4th group presentation + practice)	11/3	8	Practice: start the STEAM course with the task of a little engineer (the 5th group presentation +practice)	11/10	9	Practice: start the STEAM course with the task of a little engineer (the 6th group presentation +practice)	11/17	10	Practical case sharing of STEAM education for young
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	<p>children (Gold Award for Teaching Excellence) + English translation by teachers</p> <p>11/24 11 Practical practice of STEAM education in preschools (attending conference)</p> <p>12/1 12 STEAM curriculum design-write lesson plans in groups-refer to children's STEAM picture book (Classroom group discussion)</p> <p>12/8 13 STEAM curriculum design-write lesson plans in groups-refer to children's STEAM picture book (Classroom group discussion)</p> <p>12/15 14 STEAM curriculum design and implementation-feedback from classmates' experience (1-3 groups) [discussed in the previous week]</p> <p>12/22 15 STEAM curriculum design and implementation-feedback from children's experience (1-3 groups)</p> <p>12/29 16 STEAM curriculum design and implementation-feedback from classmates' experience (4-6 groups) [discussed in the previous week]</p> <p>1/5 17 STEAM curriculum design and implementation-feedback from children's experience (4-6 groups)</p> <p>1/12 18 Discussion & feedback</p> <p>STEAM 教育的發展背景歷史</p> <p>2. STEAM 教育的重要性及理論</p> <p>3. STEAM 教育的世界趨勢 (研討會補課)</p> <p>4. STEAM 教育的多元課程模式類型</p> <p>5. 實作-以繪本故事開啟STEAM課程 (第一組簡報+實作)</p> <p>6. 實作-以繪本故事開啟STEAM課程 (第二組簡報+實作)</p> <p>7. 實作-以戲劇方式開啟STEAM 課程 (第三組簡報+實作)</p> <p>8. 實作-以戲劇方式開啟STEAM 課程 (第四組簡報+實作)</p> <p>9. 實作-以小工程師任務方式開啟STEAM課程 (第五組簡報+實作)</p> <p>10. 實作-以小工程師任務方式開啟STEAM課程 (第六組簡報+實作)</p> <p>11. STEAM在幼教實施的實際案例分享(教學卓越金質獎)+教師翻英文</p> <p>12. STEAM教育之遊具/教具介紹與體驗 (外部講師)+教師翻英文</p> <p>13. STEAM 幼教課程設計-分組寫教案—參考孩子的STEAM繪遊書 (課堂小組討論)</p> <p>14. STEAM 幼教課程設計與實作--同學體驗給回饋 (1-3組) [前一週討論]</p> <p>15. STEAM幼教課程設計與實作--幼兒體驗給回饋 (1-3組)</p> <p>16. STEAM 幼教課程設計與實作--同學體驗給回饋 (4-6 組) [前一週討論]</p> <p>17. STEAM幼教課程設計與實作--幼兒體驗給回饋 (4-6組)</p> <p>18. 回饋總討論</p>
<p>核心能力</p>	<p>1. 1. 具備教學原理與方法論的專業 0%</p> <p>2. 2. 具備幼兒發展與輔導的專業 0%</p> <p>3. 3. 具備幼教課程與教學的專業 15%</p> <p>4. 4. 具備幼教管理與社區融合的專業 0%</p> <p>5. 5. 具備幼教藝術與科技創作的專業 55%</p> <p>6. 6. 具備掌握全球幼教發展現況與趨勢的專業 15%</p> <p>7. 7. 具備國際語言與社會參與的專業 15%</p>

預期學習成果	
與預期學習成果搭配的多元評量	Attendance + learning Attitude: 30% Discussion participation- 30% Final report: STEAM teaching plan, practice, discussion and reflection 40% 平時成績：出缺席＋上課態度：30% 課堂討論：事前準備及當天討論 30% 期末報告：STEAM 教學計畫、教案、實作、討論及省思 40%
主要讀本	Moomaw, S. (2013). Teaching STEAM in the early years: Activities for integrating science, technology, engineering, and mathematics. St. Paul, MN : Redleaf. 周淑惠 (2020)。幼教STEM課程。新北市：心理。
參考書目	Ritz, W. C. (2007). A head start on science: Encouraging a sense of wonder. Virginia: NSTA Press. Texley, J., & Ruud, R. M. (2017). Teaching STEM Literacy: A Constructivist Approach for Ages 3 to 8. MN: Redleaf Press. Ansberry, K. R., & Morgan, E. R. (2010). Picture-perfect science lessons: Using children's books to guide inquiry. Virginia: NSTA Press. 周淑惠 (2018)。具STEM精神之幼兒探究課程紀實：一起創建遊戲樂園主題。新北市：心理。 20周淑惠 (2018)。嬰幼兒STEM教育與教保實務。新北市：心理。 20周淑惠(2017)。面向21世紀的幼兒教育：探究取向主題課程。新北市：心理。(武漢市：長江出版傳媒崇文書局)
其他事項	EiE curriculum Wee engineer : https://eie.org/stem-curricula/engineering-grades-prek-8/wee-engineer http://d7.eie.org/eie-curriculum/curriculum-units [20 hands on design] https://www.youtube.com/watch?v=mNugDqQ974Y https://www.youtube.com/watch?v=NeVx0Acej0 [engineering process] 2. Puppeteering to Engineering (P2E) http://web.mit.edu/abagiati/www/p2e/index.html 3. Novel engineering https://www.novelengineering.org/ 4. Head start Engineering file:///C:/Users/user/Dropbox/Dropbox/%E5%B9%BC%E5%85%92steam%E6%95%99%E8%82%B2/Head%20start%20engineering/HSEProgramGuide_02-22-19.pdf